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THE RESOURCES AGENCY OF CALIFORNIA

Department of Water Resources

BULLETIN No. 94-10

LAND AND WATER USE IN MENDOCINO COAST HYDROGRAPHIC UNIT

Volume I: Text

Preliminary Edition

MARCH 1964

HUGO FISHER
Administrator
The Resources Agency of California

EDMUND G. BROWN
Governor
State of California

WILLIAM E. WARNE
Director
Department of Water Resources

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FOREWORD

In 1956, the State Legislature declared "that in providing for the full development and utilization of the water resources of this State it is necessary to obtain for consideration by the Legislature and the people, information as to the water which can be made available for exportation from the watersheds in which it originates without depriving those watersheds of water necessary for beneficial uses therein." The Department of Water Resources was, therefore, authorized and directed to conduct such investigations as necessary to compile this information. To do so, the department began its statewide Inventory of Water Resources and Water Requirements as outlined in the authorizing legislation (Water Code Section 232).

For purposes of this inventory, the State has been divided into major hydrographic areas. These areas, in turn, have been subdivided into hydrographic units generally comprising watersheds of individual rivers. Basic data, consisting of land and water use, classification of lands, and streamflow measurements, are collected for each hydrographic unit. To date, this activity has been concentrated mainly in northern watersheds. Results of this inventory will be presented in two series of reports covering (1) land and water use, and (2) water resources and water requirements.

The data on land and water use, together with land classification, are being published as the Bulletin 94 series; one for each hydrographic unit. This report covering the Mendocino Coast Hydrographic Unit is the tenth in the series. As the data relative to particular hydrographic units are published they become available for general studies and project investigations, not only by the department, but by all other parties concerned with the watersheds covered. When completed, this series of bulletins will provide detailed data for the whole State.

A second series of reports, each covering one or more hydrographic units, will include determinations of the available water resources and future requirements of those areas. The water resources will be determined from the records of older stream gaging stations, and a number of new stations, mainly on smaller streams not previously measured. The determination of water requirements will be based on land use patterns projected for specific points of time. These projections, in turn, will be based on the land and water use and land classification data, such as contained herein, and other available information.

Although the data developed by this inventory are to be used throughout the department's planning activities, they are most urgently needed for the staging of water projects. For this

reason, the development of these data and their application to the timing of projects were combined in the Water Requirements and Project Staging program in 1961. Under this program, determinations of the quantities of water available, and the time, place, and magnitude of the future water needs of the entire State are combined in the formulation of a sequence of projects to meet those needs. An interim staging report will be published in 1963-64.

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EDMUND G. BROWN
GOVERNOR OF
CALIFORNIA

HUGO FISHER
ADMINISTRATOR
RESOURCES AGENCY

ADDRESS REPLY TO
P. O. Box 388
Sacramento 2, Calif

WILLIAM E. WARNE
Director of
Water Resources

B. ABBOTT GOLDBERG
Chief Deputy Director

REGINALD C. PRICE
Deputy Director Policy

NEELY GARDNER
Deputy Director
Administration

ALFRED R. GOLZÉ
Chief Engineer

THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
1120 N. STREET, SACRAMENTO

October 8, 1963

Honorable Edmund G. Brown, Governor
and Members of the Legislature
of the State of California

Gentlemen:

I have the honor to transmit herewith the preliminary edition of Bulletin No. 94-10, the tenth of a series of reports of the Department of Water Resources which present detailed basic data relative to land and water use and apparent water rights within certain hydrographic units of the State. This report, entitled, "Land and Water Use in Mendocino Coast Hydrographic Unit," presents results of studies conducted pursuant to legislation sponsored by Senator Edwin J. Regan and codified under Section 232 of the Water Code. This series, when complete, will form an invaluable reference of the water resources of the State in relation to the various classes and uses of land resources.

The data contained in this series of reports provide a basis for estimates of the amount of water which originates within each watershed, the amount which can be used beneficially within each area, and the amount of surplus or deficiency therein. These estimates are being included in the staging of projects to develop most efficiently the water resources of the State.

The data presented in this bulletin will provide a factual basis for decisions of concerned interests regarding the development and use of the water resources of the Mendocino Coast Hydrographic Unit. In addition, the bulletin includes notes on the history, natural features, climate, and economy of the unit.

All public and private agencies, local interests, and individuals who may be concerned with the information presented herein are invited to submit their comments. A public hearing will be held after due notice to receive comments which will be considered in preparing the final report.

Sincerely yours,

William E. Warne

Director

STATE OF CALIFORNIA
THE RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES

EDMUND G. BROWN, Governor
HUGO FISHER, Administrator, the Resources Agency of California
WILLIAM E. WARNE, Director, Department of Water Resources

ALFRED R. GOLZE', Chief Engineer
JOHN R. TEERINK, Assistant Chief Engineer

The investigation leading to this report
was conducted by the
Bay Area Branch
under the direction of

Charles A. McCullough . . . . . Branch Chief

and

Eugene F. Serr . . . . . Acting Chief, Planning and Investigations Section

This report was prepared by

Donald J. Finlayson . . . . . Senior Engineer
Ernest H. Rojas . . . . . Assistant Civil Engineer
Richard J. Wagner . . . . . Associate Land and Water Use Analyst

Statewide aspects of the
Water Requirements and Project Staging Program
are coordinated under the direction of the
Division of Resources Planning

William L. Berry . . . . . Division Engineer
Meyer Kramsky . . . . . Chief, Statewide Investigations Branch
Ralph G. Allison . . Acting Chief, Planning Investigations Section

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ORVILLE ABBOTT
Engineer

ACKNOWLEDGMENT

The Department of Water Resources gratefully acknowledges information contributed by the numerous water users and residents of the Mendocino Coast Hydrographic Unit and various agencies of the federal, state, and local governments.

CHAPTER I

INTRODUCTION

This bulletin presents the results of land and water use and land classification surveys in the coastal watershed between the Mattole River watershed on the north and the Russian River watershed on the south. This watershed is designated herein as the Mendocino Coast Hydrographic Unit. The data presented cover present land and water use, classification of lands, systems used to divert surface water, histories of diversions, apparent water rights pertinent to each diversion, purpose and extent of use of diversions, seasonal quantities of water diverted during 1959, and an estimate of present consumptive use of water in the unit. A general description and a brief history of the area are also included.

These basic data were gathered during the period 1958-59 in compliance with Chapter 61, Statutes of 1956, as amended by Chapter 2025, Statutes of 1959, and codified in Section 232 of the Water Code of the State of California. This legislation provides for an inventory of water resources and water requirements of the State. This bulletin is the tenth of a series to be prepared under this authorization. The text of Section 232, with a discussion of its history and implications, is included in this bulletin as Appendix A.

These data will provide the basis for a future determination of the quantities of water reasonably required for future

beneficial use within the Mendocino Coast Hydrographic Unit. Preliminary estimates have been made and presented in State Water Resources Board Bulletin No. 2, "Water Utilization and Requirements of California."

The final determinations of these water requirements will be based on estimates of: (1) future land use, (2) economic patterns, (3) population, (4) industrial and agricultural development, and (5) recreational needs.

The data presented herein have been reviewed in preliminary form by representatives of Mendocino and Sonoma Counties, farm advisors, and local water users.

These groups submitted changes which were reviewed in the field, and adjustments made where warranted.

Organization of Report

This bulletin consists of five chapters. Chapter I contains a general description of the Mendocino Coast Hydrographic Unit. Chapter II, "Water Use," includes data on surface water diversion systems, related water rights information, measurements of quantities of water diverted, and an analysis of consumptive use and irrigation efficiency. Chapter III, "Land Use," includes a history of land use within the unit and tables of present land use. Maps prepared in connection with Chapters II and III delineate the areas of various present land uses and the locations of diversion systems.

Chapter IV, "Land Classification," includes a tabulation of lands classified with regard to their potential for irrigated agriculture and for recreational purposes. Maps prepared for this chapter delineate the respective classes of land grouped into several major categories. Chapter V, "Summary," summarizes the report.

Appendix A, "Statewide Water Resources and Water Requirements Program," presents the text of Section 232 of the California Water Code and a discussion of the pertinent responsibilities and work program of the Department of Water Resources. Appendix B, "Reports on Related Investigations and Other References," is a bibliography of publications pertinent to the Mendocino Coast Hydrographic Unit. Appendix C, "Legal Considerations," presents a short summary of California water law and a tabulation of applications to appropriate water in the unit.

General Description of Area

Location

The Mendocino Coast Hydrographic Unit lies in the north coastal area on the western slope of the coast range extending from just south of Northwest Cape northward to Cape Vizcanio. The location of the unit is shown on Plate 1. It is approximately 120 miles long, 25 miles wide at the center, and tapers to a point at both ends. The hydrographic unit comprises 1,359 square miles of Mendocino County and 240 square miles of Sonoma County. The major streams of the hydrographic unit, from north to south, are the Ten Mile River, Noyo River,

Big River, Navarro River, Garcia River, and Gualala River, all of which are tributary to the Pacific Ocean. The hydrographic unit boundary follows the ridges separating the drainage area of the Mendocino Coast Hydrographic Unit from the adjacent watersheds of the Eel River on the north and the Russian River on the east and south.

For the purposes of this report, the Mendocino Coast Hydrographic Unit has been divided into five subunits. Locations of the subunits are shown on Plate 1, and the area of each is shown in Table 1.

TABLE 1

AREAS OF SUBUNITS
MENDOCINO COAST HYDROGRAPHIC UNIT

Subunit	Mendocino County in acres	Sonoma County in acres	Total area Acres	Total area Square miles
Rockport	146,674	0	146,674	229
Fort Bragg	279,506	0	279,506	437
Navarro River	201,900	0	201,900	315
Point Arena	173,434	0	173,434	271
Gualala River	68,592	153,611	222,203	347
TOTAL AREA	870,106	153,611	1,023,717	1,599

Historical and Present Development

The first white settlements on the Mendocino coast were made by the Russians, who exercised a brief influence on the development of the Mendocino Coast Hydrographic Unit. In 1808, Ivan A. Kuskof was sent by the Russian-American Company to explore and select a site for a settlement north of San Francisco for the purpose of supplying the Russian Colonies in Alaska. Kuskof landed at Bodega Bay in 1811 and selected a narrow strip of coastland 18 miles north of Bodega Bay. This site was later named Fort Ross. The fort was completed in 1812, at which time development of the adjacent area began. Orchards and vineyards were set out and fields were planted with produce and grain. Cattle herds were started, and sea otter hunting was found very profitable. Due to the unfavorable coastal climate, infertility of the soil, and lack of skilled farmers, the grain crops grew poorly. By 1819, sea otter hunting had become sparse and unprofitable.

Since no material gains had been made during the first 20 years spent developing Fort Ross, it was decided to abandon the site in 1839. The property was finally sold to Captain John A. Sutter for approximately $30,000. Nearly all of the equipment and furnishings were moved to Sacramento to complete "Sutter's Fort."

In April of 1852, Captain Peter Thompson, a native of Ayreshire, Scotland, settled at Pine Grove, four miles above the mouth of Big River, and was the first known permanent white settler in the Mendocino Coast Hydrographic Unit.

In 1851, a vessel carrying a cargo of silk and tea to San Francisco encountered a severe storm and was driven ashore at the mouth of the Noyo River. A party sent from Bodega to salvage the freight saw the timber along this part of the coast and carried the information to San Francisco. The California Lumber Company with a mill at Mendocino City at the mouth of the Big River was formed in 1852 as a result of this publicity.

The first sawmill in California, and perhaps on the entire Pacific Coast, was constructed by the Russians near Fort Ross in the early 1800's. The first large permanent mill was that established by the California Lumber Company at Mendocino City in 1852. Numerous sawmills were constructed during the next 30 years, and the lumber industry became the mainstay of the economy of the area.

During the height of the lumber industry a number of towns grew along the coast, each one a shipping point. Along almost every mile of coast, in some gulch, creek, or river could be found a mill with its narrow railway built up the canyon a few miles for the purpose of bringing lumber or logs from the mountains down to the landing places. Teams of oxen dragged the logs from where they were felled to the railways. Most of the mills along the coast were operated with no loading facilities other than chutes from the cliffs, down which the lumber was slipped to the vessels lying at anchor below.

From north to south these coastal towns and hamlets were: Usal, Rockport, Hardy Creek, Westport, Cleone, Fort Bragg, Noyo, Caspar, Mendocino City, Little River, Albion, Navarro,

Greenwood, Elk, and Gualala. With the decline of lumbering, many of the villages, with their railways and wharves, were abandoned. However, a few have managed to survive and are continuing to grow. The most important of these is Fort Bragg, named in honor of General Braxton Bragg of Mexican War fame. Located one and one-half miles north of the mouth of the Noyo River, it is the second largest city in Mendocino County and the only one on the coast to have a rail connection; the California Western Railroad connects Fort Bragg with Willits.

Fort Bragg, situated in the center of a lumbering, dairying, and farming area, serves as a shipping point for these products. Its retail sales amounted to $10.3 million in 1954. It serves as a supply center for a recreational area which offers ocean and stream fishing for salmon, steelhead, and abalone, and hunting for deer and quail. The main plant of the Union Lumber Company, one of the three largest redwood mills in the world, is located here. Additional industries include commercial fishing and fish processing.

South of Fort Bragg on the coast lies Point Arena. This town was named by Captain George Vancouver, who spent the night of November 10, 1792, there in his ship, "Discovery," while enroute from Mootka to San Francisco.

Although a store was built and goods were sold on the site as early as 1859, the town of Point Arena was not incorporated until 1908. When the lumbering industry was at its height, Point Arena was the busiest town between San Francisco and Eureka.

Illustration 1
(right)

Fort Ross

Illustration 2
(bottom)

Union Lumber Company
Fort Bragg

A light station was erected well out on the point in 1870 but the brick tower was destroyed in the earthquake of 1906 and another of reinforced concrete was built subsequently a short distance back from the point.

Point Arena now serves as the terminal point for the Hawaii Trans-Pacific cable installation which was completed in late 1957. Point Arena and the adjoining unincorporated community of Manchester serves an area noted for fine dairy herds.

Mendocino City, located above the bay at the mouth of Big River, remains a thriving community. The lumbering operations started by the California Lumber Company are now operated by the Union Lumber Company, with the main plant at Fort Bragg.

To the south of Mendocino City are Little River and Albion. Between Little River and Albion, the coast is cut by wooded fiord-like inlets, and islets. It was in Albion that the second mill in the county was erected in the winter of 1852-53.

Navarro, set in a deep canyon, is today half deserted, but Elk, two miles south, retains some of its old-time milling activity.

The Mendocino Coast Hydrographic Unit is similar to most other units in the north coastal hydrographic area in that the largest share of its land area is classed as commercial forest land, about 85 percent of which is in Mendocino County. Of the estimated 780,000 acres of commercial forest lands, or 72 percent of the total land area, all but about 60,000 acres is redwood timber. The percentage of Douglas fir is much smaller here than in any of the coastal drainage basins to the north or south. Relatively large blocks of virgin or near virgin

redwood timber still exist and ownership of the forested area is concentrated in a few lumber companies and several large livestock ranchers. The timber stand volume is estimated to have been 32.0 billion board feet in 1948 and 29.3 billion board feet in 1960.

The lumbering industry remains the mainstay of the economy of the area. There is a large production of posts, shingles, grape stakes, shakes, and pilings. An important recent development is the increased industrial utilization of wood wastes and by-products.

Although the lumber industry accounts for the greatest share of the manufacturing activity of the unit, a number of other industries are worthy of note. These include the processing of dairy products, milk, cream, and butter; the canning and freezing of fish; and the packing and processing of meat, fruit, and wine.

The increase in population and industry over the past decade has taken some land out of farm acreage. Nevertheless, agriculture still ranks second to lumbering among the basic industries in the economy of the unit. On the coastal plain and in the valleys of the Navarro and Noyo Rivers are thousands of acres of soil of high fertility. Additional acreas are classified as of not quite such excellence, but of sufficient quality for profitable cultivation of many crops. Besides the cropland, farm and ranch holdings contain thousands of acres of rich grasslands on the gentle slopes of the foothills which can be grazed the year round. Consequently, there still are considerable possibilities both for expansion and for intensification of agriculture,

regardless of how rapidly population and urban area may increase. In fact, as population in Mendocino and surrounding counties increases, the demand for farm commodities produced locally will also increase.

The leading farm products in terms of dollar sales over a period of years are pears, beef cattle, wine grapes, and sheep and wool. Other important products in terms of sales are milk, poultry and eggs, apples, and prunes.

Mining in the Mendocino Coast Hydrographic Unit is of minor importance. The bulk of the output is sand, gravel, and stone, depending on the building industry, particularly highways and dams in or adjacent to the hydrographic unit. The source of these materials is principally bars along the coastal streams.

Next to the timber stands and farm lands, the richest resources are recreation areas. Business enterprises have been growing rapidly, taking advantage of this natural endowment, but much remains to be done to develop the full recreational potential of the unit.

Within the unit's borders are wide expanses of unique and beautiful scenery. Sportsmen are offered some of the best steelhead, salmon, and abalone fishing in the State, as well as a plentiful yield of deer, quail, pheasant, and grouse.

These attractions and the countless people that they bring to the area directly or indirectly support many of the permanent residents of the unit and have served to increase its taxable resources.

A famed attraction for vacationists in the area is the forty-mile long California Western Railroad, known affectionately as "The Skunk," which connects Fort Bragg and Willits. For most of its length it follows the canyon of the Noyo River, which cuts through a part of the coast range. Aside from this and a small amount of water-borne traffic moving from Caspar, Fort Bragg Landing, and Mendocino Bay anchorage, the preponderence of traffic movement is automotive.

Main highway routes include the Shoreline Highway, State Route 1, which runs the length of the coast, and highways from Willits and Ukiah which connect the unit with the areas to the east. Fort Bragg is also served by scheduled commercial flights of Pacific Airlines.

Natural Features

The Mendocino Coast Hydrographic Unit is situated in the western part of Mendocino and northwest portion of Sonoma Counties along the western slope of the Coast Range, facing the ocean. The area is about 120 miles long north and south, and 25 miles wide east and west at its widest point. The topography of the area is mountainous to hilly with a narrow strip of discontinuous marine terraces paralleling the Coast line. The area is drained by numerous streams, including Ten Mile River, Noyo River, Big River, Navarro River, Elk River, Garcia River and Gualala River. These streams are all characterized by deep narrow gorges with a limited amount of bottom land. The drainage of this entire area is towards the west and northwest.

The Fort Bragg-Point Arena area occupies a series of dissected terraces along the coast, transected by stream channels and a few alluvial flood plains. The terraces vary in width from a few hundred yards to several miles. The area extends from Cape Viscaino on the north to the Mendocino-Sonoma County line on the south.

The area is characterized by smooth to gentle relief on the terraces and gently to strongly rolling topography elsewhere. The terrace materials are unconsolidated. Elsewhere the soils are derived from weathering old consolidated rocks, predominately of marine origin. The soils of this area are low in organic content, with surface texture of fine sandy loam, loam and silt loam. The colors range from brown to grayish brown. The subsoils usually are yellowish brown, streaked or mottled with rusty brown iron stains, indicating limited or restricted drainage. They vary in degrees of compactness and include some areas of hardpan. The soils of the area are typified by the Empire, Caspar, Noyo, and Blacklock series and their complexes.

Anderson Valley is located in the south central portion of Mendocino County, midway between the coast line and Russian River. It comprises a long narrow inland valley, approximately 20 miles in length and an average of one mile in width, and extends in a northwest-southeasterly direction.

The valley consists of an elongated recent alluvial flood plain and adjacent terraces. The soils are characterized by a friable loamy texture with moderate depth. These soils, with the exception of a small area located in the southwest

portion of the valley which is subject to a high water table, are adapted to growing a wide variety of crops - vegetables - grains - pastures - vineyards and orchards. The soils in the surrounding terrace hillsides and mountains are somewhat gravelly and shallow. They are best adaptable to growing grass, some types of vineyards, and orchards. The soils of the area are typified by the Yolo, Soquel-like, Correlitos-like series, and their complexes.

The arable upland soils which were derived from weathering of altered sandstones, shales, and conglomerates, occupy open grass-covered areas on the more gentle slopes and rounded tops of lower ridges and foothills. These soils are brown to dark grayish brown, nearly black when wet, moderately acid, moderately high in organic matter, and generally shallow.

The bedding of the parent rock has been severly folded and faulted. Some of the formations are fairly soft, weather readily, and tend to erode rapidly, while others are resistant and weather more slowly, giving a rugged outline to the hills formed by them. The soils of the area are typified by the Hugo, Josephine, Usal, Kneeland, and Mendocino series and their complexes.

To summarize, the soil series found in this hydrographic unit are:

Upland - Hugo, Josephine, Usal, Kneeland, and Mendocino

Terrace - Empire, Caspar, Noyo, and Blacklock

Alluvial Flood Plains - Soquel-like, Yolo and Correlitos-like

Climate

The climate of the Mendocino Coast Hydrographic Unit is characterized by cool summers and cold, rainy and snowy winters.

Precipitation varies from 38 inches annually along the coastline to 70 inches annually in the mountains on the eastern hydrographic unit boundary and 80 inches in areas along the northeastern section of the boundary. The mean annual precipitation for the entire hydrographic unit is approximately 50 inches. More than 97 percent of the total precipitation occurs in an eight-month period beginning in October and ending in May. The other four months of the year average less than one inch per month, with August being least of all with only 0.01 of an inch. Inland, a substantial portion of the precipitation occurs as snowfall. Table 2 shows the mean annual precipitation at selected stations within and immediately adjacent to the Mendocino Coast Hydrographic Unit. In Table 2, "mean," is the arithmetic mean or average.

TABLE 2

MEAN ANNUAL PRECIPITATION AT SELECTED STATIONS
IN OR NEAR MENDOCINO COAST HYDROGRAPHIC UNIT

Station	Elevation (in feet)	Mean annual Precipitation* (in inches)	Period of record
Branscomb	2,000	81.07	1900-1923
Fort Bragg	80	37.65	1895-1959
Fort Ross	116	40.95	1874-1959

* Mean period 1905-1955. "Mean period" is a period which is believed to represent conditions of water supply and climate over a long period of time.

Temperatures in the hydrographic unit are influenced by elevation, distance from the ocean, and the coast range, which separates the drainage area from inland areas. The average annual

temperatures and average length of growing season for two representative stations are shown in Table 3. The temperatures presented are the arithmetic means of the daily minimum and maximum temperatures and the extreme minimum and maximum temperatures in degrees Fahrenheit for the indicated period of record. The length of frost free period in Table 3 represents the average period, in days, between the last day in spring and the first day in fall when the minimum daily temperature fell below 32 degrees Fahrenheit.

TABLE 3

RECORDED TEMPERATURES AT SELECTED STATIONS
IN OR NEAR MENDOCINO COAST HYDROGRAPHIC UNIT

	Elevation in feet	Mean* temperatures in °F		Extreme* temperatures in °F		Average* length of frost free period in days	Period of record
		Min.	Max.	Min.	Max.		
Branscomb	2,000	39.5	67.0	16	104	173	1900-1923
Fort Bragg	80	44.2	60.8	24	90	-	1931-1952

*Based on period of record.

Water Resources

The predomonate source of water supply to the Mendocino Coast Hydrographic Unit is the surface waters in the Ten Mile River, Noyo River, Big River, Navarro River, Garcia River, and Gualala River. Runoff is extended beyond the main precipitation period by the release of water from natural storage during the snowmelt period in spring and early summer.

Records of flow are available for the following stations: Noyo River near Fort Bragg for the period August 1951 through

September 1958; Navarro River near Navarro for the period October 1950 through September 1958; and the South Fork Gualala River near Annapolis for the period October 1950 through September 1958. The recorded flows at these stations were assumed to be equal to the full natural flows.

For the period 1907-08 through 1950-51, the flows at these stations were estimated through the use of a correlation curve. A satisfactory correlation was obtained for the Navarro River near Navarro and Noyo River near Fort Bragg with the U. S. Weather Bureau precipitation gauge at Fort Bragg. The South Fork Gualala River near Annapolis was correlated with the U. S. Weather Bureau precipitation gauge at Fort Ross.

The full natural flows of the subunits were estimated by correlation with the preceding three stations using the area precipitation method. The results of these estimates are presented in Table 4.

TABLE 4

SUMMARY OF RUNOFF DATA
MENDOCINO COAST HYDROGRAPHIC UNIT

Subunit	Mean runoff for 50-year period in acre-feet 1907-08 to 1957-58	Minimum runoff for 50-year period in acre-feet 1923-24	Maximum runoff for 50-year period in acre-feet 1940-41
Rockport	287,400	23,100	663,000
Fort Bragg	523,800	42,300	1,208,100
Navarro River	328,800	45,700	840,900
Point Arena	273,700	44,200	681,600
Gualala River	638,100	160,300	1,082,500
TOTAL	2,051,800	415,600	4,476,100

CHAPTER II - WATER USE

Water requirements in the Mendocino Coast Hydrographic Unit are satisfied almost entirely by diversion of stream runoff. For this investigation a survey was made of water uses supplied by the diversion of stream flow. The results of the survey which are reported herein include diversion locations, descriptions, uses, amounts of water diverted, and water rights information relating to diversions. Diversions of water for all purposes are reported, except those which involved less than approximately 10 acre-feet per season, or irrigated less than 3 acres. Due to the relatively low water requirements for irrigation in the area, diversions which irrigate 3 acres or more, but diverted less than 10 acre-feet, are reported.

Quantities of water diverted were measured in order to further describe the diversion systems. The measured quantities do not necessarily represent average diversions, but are the quantities diverted during 1959. These records should be considered in light of the stream runoff corresponding to the period of diversion measurement. The runoff in the Mendocino Coast Hydrographic Unit during the summer of 1959 was far below the average. During the water year from October 1958, through September 1959, the runoff in the unit was estimated to be 65 percent below the mean seasonal runoff. This period, October through September, includes the irrigation season when the relationship between supply and demand is most critical.

Illustration 3
(right)

Sand Dunes - North
of Fort Bragg

Illustration 4
(bottom)

Mouth of Noyo River
at Noyo

Factors other than available water supply, such as economic factors, may also affect the degree to which any diversion record represents typical operating conditions. No attempt was made herein to assess these factors. Generally the diversion quantities reported are the actual amounts of water taken from the respective sources, and therefore include recoverable and irrecoverable losses incidental to the primary uses, which may be consumptive, such as irrigation, or nonconsumptive, such as production of hydroelectric power.

The location of water wells and the measurement of their production were not covered in this investigation. All irrigation uses reported herein are supplied from surface water.

Urban water service in the unit is provided in the following localities:

Location	Owner	Source
Caspar	Caspar Lumber Company	Jug Handle Creek
Elk	Elk County Water District	Bonee Gulch and Tributaries to Bonee Gulch
Fort Bragg	City of Fort Bragg	Newman Gulch and Waterfall Canyon
Gualala	John and Ida Bower	China Creek, Big Gulch and Robinson Gulch
Point Arena*	William G. Hay	Springs Tributary to Point Arena Creek and wells.

Rural domestic uses are supplied by individual diversion of surface water or domestic wells.

* Although total diversion by the springs is large enough to meet the criteria for reporting, each individual spring is too small. In 1959 the well supply was adequate, and surface water was not required.

Illustration 5

Typical Mendocino Coastline

An important factor in the determination of availability of waters which are surplus to the present and future needs of an area is the existence and significance of rights to the use of these waters. For this reason there are set forth below brief statements with respect to the California law of water rights and factors concerning water rights in the Mendocino Coast Hydrographic Unit. The statements will also serve to explain references to water rights in the subsequent discussions and tables.

Water Rights

Water rights in California are limited to beneficial uses of water. Under Section 3 of Article 14 of the California Constitution, these rights are limited to the quantity of water reasonably required for the beneficial use to be served. Wasteful methods of diversion or wasteful use is prohibited.

California recognizes riparian and appropriative rights in surface water and water flowing in known and definite underground channels. Correlative and appropriative rights are recognized with respect to percolating ground water.

Riparian rights are held by the owners of land which abuts upon a natural watercourse. Riparian rights depend on the location of the land adjacent to a stream or lake and not on use of water. They are not lost through nonuse. Riaprain rights extend only to the smallest tract held under one title in the chain of title leading to the present owner. Each owner of riparian land, with respect to the other, is entitled to make reasonable beneficial use of the flow in the watercourse upon his riparian land. A riparian owner,

as against an appropriator, has paramount rights to that amount of the natural flow of a stream that he can put to reasonable beneficial use.

Appropriative rights arise by diverting water and applying it reasonably to a beneficial purpose. Appropriative rights established prior to 1914 were initiated by actual diversion and beneficial use of water, or by posting notice of an intended appropriation at the point of diversion and recording such notice in the office of the recorder of the county where the diversion was located. Since the Water Commission Act became effective in 1914, unappropriated water may be appropriated only through compliance with the provisions of that act, now contained in Division 2 of the California Water Code. Such rights relate to a specific quantity of water. Under appropriative rights, water may be used on or in connection with land away from streams as well as land contiguous to streams. The first appropriator of water from a particular watercourse as against subsequent appropriators, has the prior exclusive right to the use of water to the extent of his appropriation, without material impairment of water quality or quantity, whenever the water is available. These rights may be lost through nonuse.

Correlative rights to ground water accord to each owner of land overlying a common ground water supply, not flowing in known and definite channels. These rights allow the reasonable, beneficial use of that water supply on or in connection with his overlying land. These rights are not acquired through use or lost through nonuse. Such rights of each landowner are correlative with the

similar rights of all other owners of land overlying the same ground water supply. Any surplus in the supply may be appropriated for use on nonoverlying land. The rights of the overlying owner to the quantity of water necessary for use on his overlying land is paramount to an appropriation for distant use. Municipal use of percolating water is a nonoverlying use, whether the land that receives such service is overlying land or is located outside of the ground water area. The California law of water rights is further described in Appendix C.

Most of the water use in the Mendocino Coast Hydrographic Unit is based on riparian rights or appropriative rights established prior to 1914, and in appropriative rights established subsequent to 1914. As of May 1962, there were 76 applications to appropriate water on file with the State Water Rights Board. Permits or licenses have been granted for 72 of these applications. The remaining 4 are pending with the State Water Rights Board. All the applications are tabulated in Appendix C, Table C-1.

Surface Water Diversion

An attempt was made in the survey to locate and obtain data with respect to all diversions of more than the 10 acre-feet per year. All diversions actually in use in 1959, and those which had been used within the preceding three years, were included. For such discontinued diversions, the data of last use are recorded if known. Direct diversions, as well as those involving significant surface storage, were located. All reservoirs which had surface areas of about three acres or more were mapped. This size was the minimum mappable on the aerial photographs used. Reservoirs

Illustration 6
(top)

Union Lumber Company's
Pudding Creek Diversion

Illustration 7
(bottom)

Mouth of Caspar Creek
at Caspar

located along and operated in conjunction with canals and ditches are shown on the land and water use maps, but are not considered as separate systems and are not assigned location numbers. Similarly, supplies obtained from small intermittent streams intercepted by canal systems, which add to the primary diverted supply, are not classed as separate diversions.

In situations where water users have made efficient use of water by rediverting field runoff or spill collected from their own upstream diversions systems, the point of rediversion is neither located on the maps nor assigned a number. If return flow from another water user's operation is rediverted or if there is doubt as to the origin of the water, the diversion is delineated and assigned a number. Diversion systems of water companies or groups of water users are considered as single units; individual customer distribution points are not shown on the maps.

Diversions of surface water located in the unit in the year 1959 are classified by primary use as follows:

Primary use	Number of diversions
Irrigation	83
Industrial	10
Municipal or domestic	15
Total	108

Points of diversion and main canals or pipelines used to convey water from them are delineated on the 22 sheets of Plate 2 at the back of this bulletin. The diversions are listed in Table 5.

TABLE 5

DESCRIPTIONS OF SURFACE WATER DIVERSIONS IN
MENDOCINO COAST HYDROGRAPHIC UNIT

1959

Location number and Plate 2 sheet number	Diversion name and/or owner	Source	Water use in 1959			Apparent water right			Indicated date of appropriation or first use	Description of diversion system	Remarks
			Purpose	Extent and method of use	Amount diverted in acre-feet	Type	Amount	Reference			
						FORT BRAGG SUBUNIT					
M D B & M											
16N/17W-4N1 (Sheet 8)	Ole Hervilla	Unnamed tributary to the Pacific Ocean	Irrig.	43 acres by eprinkler*	6	Riparian	--	--	1957	Gravity; 0.4 mile of 6x6 inch wood flume to 3-acre foot regulating reservoir with 5-hp motor directly connected to distribution system.	Golf course
16N/17W-9C1 (Sheet 8)	Arthur R. Oliver	Unnamed tributary to the Pacific Ocean	Irrig. Stock.	35 acres by sprinkler 11 head	2	Riparian	--	--	1948	Pump; earth dam 15 feet high, 250 feet long with 2-acre reservoir and 2-hp motor with 0.2 mile of 2-inch pipe.	
16N/17W-9C2 (Sheet 8)	Arthur R. Oliver	Unnamed tributary to the Pacific Ocean	(*)	(*)	(e)	Riparian	--	--	1948	Pump; 1.5-hp motor with 0.1 mile of 2-inch pipe.	Purpose, extent of use and amount diverted reported under 16N/17W-9C1
16N/17W-8P1 (Sheet 8)	Cecil R. Mallory	Unnamed tributary to the Pacific Ocean	Irrig.*	(*)	None	Riparian	--	--	Prior	Pump; earth dam with 5-acre foot reservoir and 3-hp motor directly connected to distribution system.	No diversion from 1956 through 1959. Formerly irrigated 5 acres by eprinkler.
16N/17W-28B1 (Sheet 8)	Masonite Corp.	Happy Valley Canyon	Domestic	32 connections*	15	Riparian	--	--	1955	Gravity; 0.5 mile of 2-inch plastic pipe and 400 feet of 1.5-inch plastic pipe.	Serves Otto's Albion Flat Resort.
17N/15W-5K1 (Sheet 7)	California Department of Natural Resources, Division of Forestry	Freathy Creek	Domestic	8 connections	Not Meas.	Riparian	--	--	1958	Pump; concrete dam 10 feet high, 18 feet long with 3-hp motor and 0.1 mile 2-inch pipe.	
17N/16W-4C1 (Sheet 6)	California Department of Natural Resources, Division of Forestry	Parlin Fork	Irrig. Domestic	3 acres by sprinkler 12 connections	Not Meas.	Riparian	--	--	1950	Pump and gravity; concrete dam 7 feet high, 20 feet long with 7.5-hp motor and three separate pipe systems; (1) 0.2 mile of 4-inch pipe to two 25,000-gallon storage tanks for domestic use, (2) short 6-inch pipe to irrigated parcel, and (3) 0.1 mile of 6-inch gravity feed pipe to 17N/16W-4D1 diversion point.	Amount diverted used to supplement 17N/16W-4D1.
18N/16W-33N1 (Sheet 6)	California Department of Natural Resources, Division of Forestry	South Fork Noyo River	Irrig. Domestic	2 acres by eprinkler (c)	Not* Meas.	Riparian	--	--	1950	Pump; concrete dam 4 feet high 15 feet long with two separate pipe systems: (1) 0.3 mile of 4-and 6-inch pipe to 25,000-gallon storage tank for irrigation, and (2) 0.5 mile of 2.5-inch pipe for domestic use.	Amount diverted includes supplemental supply from 17N/16W-4C1.

* See Remarks
For lettered footnotes, see last page of table.

TABLE 5 (Continued)

DESCRIPTIONS OF SURFACE WATER DIVERSIONS IN
MENDOCINO COAST HYDROGRAPHIC UNIT

1959

Location number and Plate 2 sheet number	Diversion name and/or owner	Source	Water use in 1959			Apparent water right			Indicated date of appropriation or first use	Description of diversion system	Remarks
			Purpose	Extent and method of use	Amount diverted in acre-feet	Type	Amount	Reference			
					FORT BRAGG SUBUNIT (Continued)						
M D B & M											
18N/17W-6E1 (Sheet 5)	Union Lumber Co.	Pudding Creek	Indust.	Lumber mill	748	Approp.	1.0 cfs	A-15082[b]	1954	Storage and pump; earth dam 10 feet high, 200 feet long with 270-acre reservoir and 50-hp motor with 0.8 mile of 10-inch pipe.	Diversion point receives supplemental supply from 18N/17W-9C1.
18N/17W-8P1 (Sheet 5)	August J. Avila	Unnamed springe tributary to Noyo River	Irrig.	10 acres by sprinkler and furrow	Not Meas.	Riparian	--	--	1942	Gravity; earth dam 3 feet high with 0.4 mile of 1.5-inch plastic pipe.	
18N/17W-9C1 (Sheet 5)	Union Lumber Co	Noyo River	Indust.	Lumber mill	306*	Approp.	3.0 cfs	A-15083[b]	1952	Pump; motor with 6-inch discharge and 0.3 mile of 8-inch pipe.	Amount diverted flows into Pudding Creek and supplements natural flow diverted by 18N/17W-6E1.
18N/17W-16D1 (Sheet 5)	City of Fort Bragg	Newman Gulch	Municip.	1500 connections	618*	Approp.	--	--	Prior 1910	Gravity; wood dam 5 feet high, 60 feet long with 2.5 miles of 10-inch pipe.	Amount diverted includes supplemental supply from 18N/17W-28E1.
18N/17W-18J1 (Sheet 5)	Union Lumber Co.	Noyo Waterfall Gulch	Indust.	Lumber mill	162	Approp.	0.56 cfs	A-14566[b]	1920	Gravity and pump; 0.2 mile of 6-inch pipe to 20-hp motor and 1.2 miles of 6-and 8-inch pipe.	This diversion is gravity flow for 0.2 mile, at this point water from 18N/17W-18N1 supplements flow and is pumped by 20-hp motor to log pond.
18N/17W-18N1 (Sheet 5)	Union Lumber Co.	Hare Creek	Indust.	Lumber mill	646	Approp.	1.11 cfs	A-14565[b]	1920	Pump; 50-hp motor with 0.2 mile of 6-inch pipe and 0.2 mile of 8-inch pipe.	This system joins 18N/17W-18J1 at 20-hp motor location.
18N/17W-18P1 (Sheet 5)	Donald S. Babcock	Hare Creek	Irrig.	5 acres by sprinkler	3	Approp.	0.13 cfs	A-14792[b]	1952	Pump; gasoline engine with 3-inch discharge directly connected to distribution system.	
18N/17W-19N1 (Sheet 5)	Bill Olander	Digger Creek	Indust.	Trout Farm	398*	Approp.	0.49 cfs	A-7176[b]	1928	Gravity and storage; wood dam 3 feet high, 8 feet long with 0.5 mile pipe to several ponds with a total surface area of approximately 5 acres.	Former owner: John Wonacott. Amount diverted includes supplemental supply from 18N/17W-19P1.
18N/17W-19P1 (Sheet 5)	Bill Olander	Digger Creek	(*)	(*)	(*)	Approp.	0.015 cfs	A-9012[b]	1937	Gravity; wood dam 3 feet high, 8 feet long with 300 feet of pipe to 18N/17W-19N1.	Former owner: John Wonacott. Purpose, extent of use and amount diverted reported under 18N/17W-19N1.
18N/17W-28E1 (Sheet 5)	City of Fort Bragg	Waterfall Canyon	(*)	(*)	(*)	(a)	--	--	Prior 1910	Gravity; earth dam 3 feet high, 7 feet long with 2.5 miles of 10-inch pipe.	Purpose, extent of use and amount diverted reported under 18N/17W-16D1.

* See Remarks
For letter footnotes, see last page of table.

TABLE 5 (Continued)

DESCRIPTIONS OF SURFACE WATER DIVERSIONS IN
MENDOCINO COAST HYDROGRAPHIC UNIT
1959

Location number and Plate 2 sheet number	Diversion name and/or owner	Source	Water use in 1959			Apparent water right			Indicated date of appropriation or first use	Description of diversion system	Remarks
			Purpose	Extent and method of use	Amount diverted in acre-feet	Type	Amount	Reference			
						FORT BRAGG SUBUNIT (Continued)					
M D B & M											
18N/17W-31N1 (Sheet 5)	Caspar Lumber Company	Jug Handle Creek	Municip.*	46 connections *	Not Meas.	Riparian	—	--	Approx. 1915	Pump; 7.5-hp motor with 1.2 miles of 6-inch wood stava pipe	Supplies community of Caspar.
19N/17W-15L1 (Sheet 4)	Andrew Kaijankoski	Unnamed tributary to Little Valley	Irrig.	11 acres by sprinkler	2	Riparian	--	--	1952	Pump; earth dam 10 feet high, 200 feet long and gasoline engine with a 2-inch discharge directly connected to distribution system.	
19N/17W-30F1 (Sheet 4)	Tygne Nye	Unnamed tributary to the Pacific Ocean	(*)	(*)	None	Riparian	--	--	1953	Storage and pump; earth dam 8 feet high, 375 feet long with 1-acre reservoir and pump with 3-inch discharge directly connected to distribution system.	No diversion from 1956 through 1959. Formerly irrigated 67 acres by sprinkler.
						GUALALA RIVER SUBUNIT					
8N/13W-24E1 (Sheet 22)	Sea View Lumber Company	Kalmer Creek	Domestic Indust.	Lumber Mill 18 connections	2	Riparian	—	--	1944*	Pump; 7.5-hp motor with 0.2 mile of 4-inch pipe, to 16,000-gallon storage tank.	
9N/12W-5N1 (Sheet 21)	Stanley Richardson	Old House Creek	Irrig. Stock.	17 acres by sprinkler; 3,000 head	30	Approp.	0.42 cfs 20 afa	A-11416[b]	1946	Storage and pump; concrete dam 7 feet high, 75 feet long with 23 acre-foot reservoir and 30-hp motor with 0.5 mile of 6-inch pipe and 1.2 miles of 4-inch pipe.	Former owner: Theron L. Hedgepeth
9N/12W-16G1 (Sheet 21)	Stanley Richardson	Oak Basin Creek	(*)	(*)	None	(a)	--	--	1954	Storage; earth dam 60 feet high, 265 feet long with 8-acre reservoir	Former owner: Theron L. Hedgepeth, sold property before dam was completed. Richardson never used reservoir.

* See Remarks
For lettered footnotes, see last page of table.

DESCRIPTIONS OF SURFACE WATER DIVERSIONS IN MENDOCINO COAST HYDROGRAPHIC UNIT

1959

Location number and Plate 2 sheet number	Diversion name and/or owner	Source	Water use in 1959			Apparent water right			Indicated date of appropriation or first use	Description of diversion system	Remarks
			Purpose	Extent and method of use	Amount diverted in acre-feet	Type	Amount	Reference			
					GUALALA RIVER SUBUNIT (Continued)						
M D B & M											
9N/13W-13L1 (Sheet 21)	Donald M. Richardson	Unnamed tributary to the Pacific Ocean	Irrig. Domestic	(*) (c)	Not Meas.	Riparian	--	--	1955	Gravity; 0.2 mile of 1.5-inch pipe connected directly to sprinkler system.	No irrigation in 1959. Formerly irrigated 7 acres by sprinkler.
9N/13W-24B1 (Sheet 21)	Donald M. Richardson	Unnamed tributary to the Pacific Ocean	Irrig.	7 acres by sprinkler	Not Meas.	Riparian	--	--	1955	Gravity; 0.2 mile of 0.75-inch plastic hose directly connected to distribution system.	
9N/14W-3J1 (Sheet 21)	Harold F. Richardson	Stewarts Point Creek	Irrig.	2 acres by sprinkler	Not Meas.	Riparian	--	--	1946	Pump; 15-hp motor directly connected to distribution system.	
11N/15W-27B1 (Sheet 18)	John and Ida Bower	China Creek	Indust. Domestic	Lumber mill 10 connections	14	Riparian	--	--	1950	Pump; 5-hp motor with 0.4 mile of 2-inch pipe, to storage tank and small pump directly connected to distribution system.	
11N/15W-27G1 (Sheet 18)	John and Ida Bower	China Creek	Municip.*	(*)	12	Approp.	--	--	1880	Gravity; small wooden box with 0.3 mile of 6-inch by 6-inch flume and 200 feet of 4-inch pipe to eleven storage tanks with 71,000-gallon capacity.	Former owners: Empire Redwood Company, American Redwood Company. Supplies community of Gualala.
					NAVARRO RIVER SUBUNIT						
12N/13W-11B1 (Sheet 17)	C. B. Orchard	Rancheria Creek	Irrig.	21 acres by flooding*	Not Meas.	Riparian	--	--	--	Pump; motor, 3-inch discharge directly connected to distribution system.	Former owner: Fred B. Galbreath. Received supplemental supply from 12N/13W-11C1.
12N/13W-11C1 (Sheet 17)	C. B. Orchard	Rancheria Creek	(*)	(*)	(*)	Riparian	--	--	--	Pump; motor, 4-inch discharge with 0.3 mile pipe.	Former owner: Fred B. Galbreath. Received supplemental supply from 12N/13W-11B1.
12N/13W-13E1 (Sheet 17)	Fred B. Galbreath	Rancheria Creek	Irrig.	23 acres by sprinkler	Not Meas.	Riparian	--	--	1953	Pump; 15-hp motor directly connected to distribution system.	
13N/14W-2G1 (Sheet 15)	Archie Schoenahl	Anderson Creek	Irrig.	64 acres by sprinkler	58	Riparian	--	--	1946*	Pump; two 15-hp motors with 0.2 mile of 6-inch pipe.	
13N/14W-2K1 (Sheet 15)	Grover Williams	Anderson Creek	Irrig.	18 acres by sprinkler*	36	Riparian	--	--	1948	Pump; 10-hp motor directly connected to distribution system.	Changed from flood irrigation to sprinkler system and larger motor in 1954.

* See Remarks

For lettered footnotes, see last page of table.

TABLE 5 (Continued)

DESCRIPTIONS OF SURFACE WATER DIVERSIONS IN
MENDOCINO COAST HYDROGRAPHIC UNIT

1959

Location number and Plate 2 sheet number	Diversion name and/or owner	Source	Water use in 1959			Apparent water right			Indicated date of appropriation or first use	Description of diversion system	Remarks
			Purpose	Extent and method of use	Amount diverted in acre-feet	Type	Amount	Reference			
					NAVARRO RIVER SUBUNIT (Continued)						
M D B & M											
13N/14W-2R1 (Sheet 15)	John T. Parrer	Anderson Creek	Irrig.	5 acres by sprinkler	1	Riparian	--	--	1954	Pump; 10-hp gasoline engine with 200 feet of 4-inch pipe.	
13N/14W-11F1 (Sheet 15)	G. P. Bradford	Unnamed tributary to Anderson Creek	Irrig.	15 acres by sprinkler	21*	Riparian	--	--	1950	Pump; 5-hp motor with 0.1 mile of 2-inch pipe.	Received supplemental supply from 13N/14W-11K1.
13N/14W-11K1 (Sheet 15)	G. P. Bradford	Unnamed tributary to Anderson Creek	Irrig.*	(*)	(*)	Riparian	--	--	1950	Pump; 2-hp motor with 0.2 mile of 2-inch pipe.	Purpose, extent of use and amount diverted reported under 13N/14W-11F1.
13N/14W-14E1 (Sheet 15)	G. P. Bradford	Unnamed tributary to Anderson Creek	Irrig.	16 acres by sprinkler*	14	Riparian	--	--	1946	Gravity; earth dam 15 feet high, 30 feet long with 0.2 mile of 6-inch pipe to 5-hp motor with 0.3 mile of 4-inch pipe.	Changed from flooding to sprinkler in 1950.
14N/14W-17L1 (Sheet 13)	Leo L. Sanders	Indian Creek	Irrig.	22 acres by sprinkler*	40	Riparian	--	--	1958	Pump; 20-hp motor with 0.2 mile of 6-inch pipe.	Additional 4 acres follow in 1959.
14N/14W-17N1 (Sheet 13)	Bob Piper	Indian Creek	Irrig.	45 acres by sprinkler	51	Riparian	--	--	Prior 1950	Pump; 15-hp motor with 0.7 mile of 6-inch pipe.	Former owner: Clare Dightman.
14N/14W-17N2 (Sheet 13)	Mac-Young Lumber Company	Indian Creek	Indust.	Lumber mill	13	Approp.	0.055 cfs	A-16263[b]	1955	Pump; gasoline engine, 3-inch discharge with 400 feet of 4-inch pipe to 8-acre foot log pond.	
14N/14W-19H1 (Sheet 13)	Robert J. Mathias	Indian Creek	Irrig.*	(*)	None	Approp.	0.15 cfs	A-15520[b]	1953	Pump; 15-hp motor with 0.1 mile of 6-inch pipe.	Former owner: Harold E. Eyles. No diversion from 1958 through 1959. Formerly irrigated 5 acres by sprinkler.
14N/14W-19R1 (Sheet 13)	Irving R. Newman	Navarro River	Irrig.	15 acres by sprinkler	Not Meas.	Approp.	0.13 cfs	A-12489[b]	1947	Pump; 20-hp motor directly connected to distribution system.	Former owner: J. Selby.
14N/14W-20L1 (Sheet 13)	Marion W. Prather	Anderson Creek	Irrig.* Stock.	(*) 200 head	Not Meas.	Approp.*	0.375 cfs	A-15652[b]	1951	Pump; 40-hp motor with 0.4 mile of 6-inch pipe.	No irrigation in 1959. Formerly irrigated 40 acres by sprinkler. Appropriate water right cancelled at request of permitter 10/21/59.
14N/14W-28E1 (Sheet 13)	J. E. Baxman	Anderson Creek	Irrig.	16 acres by sprinkler	14	Approp.	0.63 cfs	A-15425[b]	1953	Pump; 20-hp motor directly connected to distribution system.	

* See Remarks
For lettered footnotes, see last page of table.

TABLE 5 (Continued)

DESCRIPTIONS OF SURFACE WATER DIVERSIONS IN MENDOCINO COAST HYDROGRAPHIC UNIT

1959

Location number and Plate 2 sheet number	Diversion name and/or owner	Source	Water use in 1959			Apparent water right			Indicated date of appropriation or first use	Description of diversion system	Remarks
			Purpose	Extent and method of use	Amount diverted in acre-feet	Type	Amount	Reference			
					NAVARRO RIVER SUBUNIT (Continued)						
M O B & M											
14N/14W-28K1 (Sheet 13)	Rawles Brothers	Anderson Creek	Irrig.	31 acres by sprinkler	23	Approp.	0.75 cfs	A-15986[b]	1954	Pump; 20-hp motor with 0.2 mile of 6-inch pipe.	
14N/14W-28R1 (Sheet 13)	Rawles Brothers	Anderson Creek	Irrig.*	(*)	None	Approp.	0.75 cfs	A-15986[b]	1951	Pump; 15-hp motor directly connected to distribution system.	No diversion in 1959. Formerly irrigated 25 acres by sprinkler.
14N/14W-29A1 (Sheet 13)	E. A. Ford	Anderson Creek	Irrig.	17 acres by sprinkler	Not Meas.	Approp.	0.43 cfs	A-15799[b]	1955	Pump; 15-hp motor directly connected to distribution syetem.	
14N/14W-29H1 (Sheet 13)	E. A. Ford	Anderson Creek	Irrig.	34 acres by sprinkler	Not Meas.	Approp.	0.43 cfs	A-15799[b]	1948	Pump; 15-hp motor with 0.1 mile of 4-inch pipe.	Former owners: Ditman, Floyd Johnson.
14N/14W-34A1 (Sheet 13)	R. M. Zane	Con Creek	Irrig.	27 acres by sprinkler	37	Approp.	0.16 cfs	A-13176[b]	1949	Pump; gravel dam 5 feet high, 30 feet long with 15-hp motor and 250 feet of 6-inch pipe.	
14N/14W-34M1 (Sheet 13)	M. L. Farrer	Anderson Creek	Irrig.	31 acres by sprinkler	32	Approp.	0.66 cfs	A-15733[b]	1916	Pump; 15-hp motor directly connected to distribution system.	Former owner: S. T. Farrer.
14N/15W-11E1 (Sheet 12)	Oliver W. Winkler	Navarro River	Irrig. Stock.	83 acres by sprinkler 123 head	156	Approp.	1.33 cfs	A-18052[b]	1953	Pump; two motors, one 25-hp and one 30-hp with 0.7 mile of 5-and 6-inch pipe.	
14N/15W-11G1 (Sheet 12)	Clyde E. Price	Unnamed tributary to the Navarro River	Irrig.	25 acres by sprinkler	2	Riparian	--	--	1953	Pump; earth dam 20 feet high, 80 feet long with 5-hp motor directly connected to distribution syetem.	
14N/15W-11J1 (Sheet 12)	M. Cecil and Alice M. Gowan; James C. and Josephine Gowan	Navarro River	Irrig. Stock.	40 acres by sprinkler* 10 head	70*	Approp.	0.36 cfs	A-9618[b]	1939	Pump; 20-hp motor with 0.2 mile of 6-inch pipe.	Received supplemental supply from 14N/15W-11J2 and 14N/1 W-12N1. Amount diverted used partly to supplement 14N/15W-11J2.
14N/15W-11J2 (Sheet 12)	Byron Gowan	Navarro River	Irrig.	31 acres by sprinkler*	29*	Approp.	0.36 cfs	A-9618[b]	1939	Pump; 15-hp motor with 0.1 mile of 4-inch pipe.	Received supplemental supply from 14N/15W-11J1. Amount diverted used partly to supplement 14N/15W-11J1.
14N/15W-11K1 (Sheet 12)	Archie Schoenahl	Navarro River	Irrig.	23 acres by sprinkler	44	Riparian	--	--	1955	Pump; 15-hp motor with 0.2 mile of 6-inch pipe and 400 feet of 4-inch pipe.	
14N/15W-12D1 (Sheet 12)	Ethel I. Williams	Unnamed tributary to the Navarro River	Irrig. Stock.	20 acres by sprinkler 80 head	10	Riparian	--	--	1952	Gravity and pump;* concrete dam 10 feet high, 20 feet long with 7-hp gasoline engine and 0.4 mile of 4-inch pipe.	Most of irrigation was by gravity, irrigated 2 acres with pump.

* See Remarks

For lettered footnotes, see last page of table.

TABLE 5 (Continued)

DESCRIPTIONS OF SURFACE WATER DIVERSIONS IN
MENDOCINO COAST HYDROGRAPHIC UNIT
1959

Location number and Plate 2 sheet number	Diversion name and/or owner	Source	Water use in 1959			Apparent water right			Indicated date of appropriation or first use	Description of diversion system	Remarks
			Purpose	Extent and method of use	Amount diverted in acre-feet	Type	Amount	Reference			
					NAVARRO RIVER SUBUNIT (Continued)						
M D B & M											
14N/15W-12N1 (Sheet 12)	M. Cecil and Alice M. Gowan; James C. and Josephine Gowan.	Navarro River	Irrig.	22 acres by sprinkler	60*	Riparian	--	--	1953	Pump; 15-hp motor with 0.2 mile of 4- and 6-inch pipe.	Amount diverted used partly to supplement 14N/15W-11J1.
14N/15W-13M1 (Sheet 12)	Arthur Gowan	Navarro River	Irrig.	14 acres by flooding	Not Meas.	Riparian	--	--	1930	Pump; 15-hp motor directly connected to distribution system.	Former owner: Byron Gowan.
14N/15W-13G1 (Sheet 12)	Arthur Gowan	Navarro River	Irrig.	3 acres by sprinkler	2	Riparian	--	—	1958	Pump; 10-hp gasoline engine directly connected to distribution system.	Former owner: Byron Gowan.
14N/15W-13G2 (Sheet 12)	Arthur Gowan	Navarro River	Irrig.*	(*)	None	Riparian	--	--	1955	Pump; 10-hp motor directly connected to distribution system.	Former owner: Byron Gowan. No diversion in 1958 or 1959. Formerly irrigated 10 acres by sprinkler.
					POINT ARENA SUBUNIT						
11N/15W-21P1 (Sheet 18)	Melvin S. Wilson Et ux	Getchell Gulch	Irrig. Stock. Rec.	5 acres by sprinkler 28 head fishing	0.3	Riparian	--	--	1953	Storage and pump; dam 20 feet high, 250 feet long with 15-acre foot reservoir and 7.5-hp motor directly connected to distribution system.	
11N/15W-27M1 (Sheet 18)	John and Ida Bower	Robineon Gulch*	Municip.	100 connections	6*	Approp.	1 cfs	A-9372[b] A-9454[b]	Approx. 1909	Pump; two 3-hp motors with 300 feet of 2-inch plastic pipe to several storage tanks.	Also referred to as School House Gulch. One pump serves as a standby. Amount diverted supplements supply for the community of Gualala.
11N/15W-28B1 (Sheet 18)	John and Ida Bower	Big Gulch	(*)	(*)	28*	Approp.	1 cfs	A-9372[b] A-9454[b]	1938	Pump; earth dam 2 feet high, 10 feet long with 7.5-hp motor and 0.4 mile of 2-inch steel and plastic pipe to several storage tanks.	Purpose and extent of use reported under 11N/15W-27M1. Amount diverted supplements supply for the community of Gualala.
12N/13W-6N1 (Sheet 17)	Mrs. J. W. Mialliard, Jr.	Mill Creek	Irrig.	3 acres by sprinkler	Not Meas.	Riparian	--	--	Approx. 1950	Pump; gasoline engine with 2-inch discharge, directly connected to distribution system.	
12N/16W-4J1 (Sheet 16)	William F. Walsh	Garcia River	Irrig. Stock.	18 acres by sprinkler 150 head	19	Approp.	0.35 cfs	A-16419[b]	1955	Pump; 7.5-hp motor directly connected to distribution system.	

* See Remarks
For lettered footnotes, see last page of table.

TABLE 5 (Continued)

DESCRIPTIONS OF SURFACE WATER DIVERSIONS IN MENDOCINO COAST HYDROGRAPHIC UNIT

1959

Location number and Plate 2 sheet number	Diversion name and/or owner	Source	Water use in 1959			Apparent water right			Indicated date of appropriation or first use	Description of diversion system	Remarks
			Purpose	Extent and method of use	Amount diverted in acre-feet	Type	Amount	Reference			
				POINT ARENA SUBUNIT (Continued)							
M D B & M											
12N/16W-14K1 (Sheet 16)	Reed R. Farnsworth	Garcia River	Irrig. Stock.	8 acres by sprinkler* 67 head	16	Riparian	--	--	1930	Pump; 7.5-hp motor directly connected to distribution system.	Former owner: Bert Begley. Additional 10 acres irrigated until 1959.
13N/16W-6E1 (Sheet 14)	John Acquistapace	Irish Creek	Irrig.	30 acres by sprinkler	36	Approp.	1.0 cfs	A-16635[b]	1953	Pump; 25-hp motor with 0.2 mile of 6-inch pipe.	
13N/16W-7E1 (Sheet 14)	James P. Biaggi	Unnamed tributary to Alder Creek	Irrig.	40 acres by sprinkler	18	Riparian	--	--	1952	Pump; 15-hp motor directly connected to distribution system.	
13N/16W-18C1 (Sheet 14)	Herbert Richardson	Alder Creek	Irrig.	10 acres by sprinkler	44	Approp.	0.31 cfs	A-16247[b]	1950	Pump; 10-hp motor directly connected to distribution system.	
13N/16W-19N1 (Sheet 14)	Elmer L. Walker	Brush Creek	Irrig. Stock.	44 acres by sprinkler 250 head	24	Approp.	0.8 cfs	A-16815[b]	1943	Pump; 7.5-hp motor with 0.2 mile of 4-inch pipe.	
13N/16W-31J1 (Sheet 14)	Vernon Kendall	Garcia River	Irrig. Stock.	7 acres by sprinkler 84 head	20	Approp.	0.72 cfs	A-16663[b]	1951	Pump; 15-hp motor directly connected to distribution system.	
13N/16W-33M1 (Sheet 14)	Oscar J. Olson	Alan Creek	Irrig. Stock.	21 acres by sprinkler 215 head	24	Riparian	--	--	1948	Pump; wooden dam 2 feet high, 18 feet long with 5-hp motor directly connected to distribution system.	
13N/17W-12K1 (Sheet 14)	James P. Biaggi	Alder Creek	Irrig.	20 acres by sprinkler	30	Approp.	0.22 cfs	A-16592[b]	1954	Pump; 10-hp motor directly connected to distribution system.	
13N/17W-12R1 (Sheet 14)	Herbert Richardson	Alder Creek	Irrig.	4 acres by sprinkler	16	Approp.	0.31 cfs	A-16247[b]	1953	Pump; 7.5-hp motor directly connected to distribution system.	
13N/17W-22J1 (Sheet 14)	James P. Biaggi	Brush Creek	Irrig. Stock.	141 acres by sprinkler * 180 head	30	Approp.	2.06 cfs	A-16593[b]	1951	Pump; 20-hp motor* directly connected to distribution system.	Area irrigated received supplemental supply from 13N/17W-23M1 and 13N/17W-24E1. This diversion system also used at 13N/17W-24E1.
13N/17W-23M1 (Sheet 14)	James P. Biaggi	Brush Creek	(*)	(*)	26*	Approp.	2.06 cfs	A-16593[b]	1958	Pump; 15-hp motor directly connected to distribution system.	Purpose and extent of use reported under 13N/17W-22J1.
13N/17W-24E1 (Sheet 14)	James P. Biaggi	Lagoon Lake	(*)	(*)	90*	Approp.	0.63 cfs	A-17161[b]	1959	(*)	Purpose and extent of use reported under 13N/17W-22J1. Amount diverted used to supplement 13N/17W-22J1. Used diversion system of 13N/17W-22J1.

* See Remarks
For letter footnotes, see last page of table.

TABLE 5 (Continued)

DESCRIPTIONS OF SURFACE WATER DIVERSIONS IN
MENDOCINO COAST HYDROGRAPHIC UNIT

1959

Location number and Plate 2 sheet number	Diversion name and/or owner	Source	Water use in 1959			Apparent water right			Indicated date of appropriation or first use	Description of diversion system	Remarks
			Purpose	Extent and method of use	Amount diverted in acre-feet	Type	Amount	Reference			
					POINT ARENA SUBUNIT (Continued)						
M D B & M											
13N/17W-35Q1 (Sheet 14)	Charles, Leslie and William Stornetta	Garcia River	Irrig.	42 acres by sprinkler	56	Approp.	1.4 cfs	A-16627[b]	1952	Pump; 10-hp motor directly connected to distribution system.	
13N/17W-35J1 (Sheet 14)	Charles, Leslie and William Stornetta	Garcia River	Irrig. Stock.	171 acres by sprinkler 650 head	74	Approp.	1.4 cfs	A-16627[b]	1951	Pump; 25-hp motor directly connected to distribution system.	
13N/17W-36L1 (Sheet 14)	Georgs Dewey Storoetta	Garcia River	Irrig. Stock.	122 acres by sprinkler 105 head	48	Approp.	0.5 cfs	A-16628[b]	1950	Pump; 10-hp motor directly connected to distribution system.	
13N/17W-36M1 (Sheet 14)	John Stornetta	Garcia River	Irrig. Stock.	45 acres by sprinkler 140 head	48	Approp.	0.7 cfs	A-16700[b]	1948	Pump; 10-hp motor directly connected to distribution system.	
13N/17W-36M2 (Sheet 14)	Charles, Leslie and William Stornetta	Garcia River	Irrig.	55 acres by sprinkler	Not Meas.	Approp.	1.4 cfs	A-16627[b]	1955	Pump; 15-hp motor directly connected to distribution system.	
13N/17W-36M3 (Sheet 14)	John Stornetta	Garcia River	Irrig.	44 acres by sprinkler	54	Approp.	0.7 cfs	A-16700[b]	1959	Pump; 20-hp motor directly connected to distribution system.	
13N/17W-36R1 (Sheet 14)	Margaret Bishop et al	Garcia River	Indust.	Gravel plant	20	Riparian	--	--	1956	Pump; 7.5-hp motor with 40 feet of 4-inch pipe.	
13N/17W-36R2 (Sheet 14)	Margaret Bishop et al	Garcia River	Irrig. Stock. Domestic	30 acres by sprinkler 105 head (c)	28	Riparian	--	--	1954	Pump; two pumps, one 7.5-hp motor and one 1.0-hp motor directly connected to distribution system.	
14N/16W-19L1 (Sheet 12)	Martin Christianeen	Unnamed tributary to the Pacific Ocean	Irrig.	6 acres by sprinkler	8	Riparian	--	--	1952	Gravity ; earth dam 6 feet high, 30 feet long with 0.5 mile of 4-inch pipe to 2.5-hp motor directly connected to distribution system.	
14N/16W-31E1 (Sheet 12)	Beal Brothers	Mallo Pass Creek	Irrig.	72 acres by sprinkler	53	Approp.	0.94 cfs	A-16636[b]	1954	Pump; 30-hp motor with 0.1 mile of 6-inch pipe.	
14N/17W-11R1 (Sheet 12)	Galetti Brothers	Unnamed tributary to the Pacific Ocean	Irrig.	93 acres by sprinkler	14	Approp.	0.028 cfs	A-16771[b]	1948	Storage and pump; earth dam 6 feet high, 400 feet long with 15-hp motor directly connected to distribution system.	
14N/17W-13E1 (Sheet 12)	Henry Galetti	Unnamed tributary to the Pacific Ocean	Irrig.	29 acres by sprinkler	2	Riparian	--	--	1948	Pump; 10-hp motor directly connected to distribution system.	

* See Remarks
For letter footnotes, see last page of table.

TABLE 5 (Continued)

DESCRIPTIONS OF SURFACE WATER DIVERSIONS IN MENDOCINO COAST HYDROGRAPHIC UNIT

1959

Location number and Plate 2 sheet number	Diversion name and/or owner	Source	Water use in 1959			Apparent water right			Indicated date of appropriation or first use	Description of diversion system	Remarks
			Purpose	Extent and method of use	Amount diverted in acre-feet	Type	Amount	Reference			
					POINT ARENA SUBUNIT (Continued)						
M D B & M											
15N/17W-23N1 (Sheet 10)	Charles and Peter Nonella	Laurel Gulch	Irrig.* Stock*	(*) (*)	None	Riparian	--	--	1952	Storage and pump; 8-acre foot reservoir with 20-hp motor directly connected to distribution system.	No diversion in 1958 or 1959. Formerly irrigated 17 acres by sprinkler and watered 40 head of stock.
15N/17W-35G1 (Sheet 10)	Elk County Water District	Unnamed tributary to Bonee Gulch	Domestic Indust.	Lumber mill 64 connections	55*	Approp.	--	--	Prior 1900	Gravity; small rock dam with short lateral to main flume.*	Previous owners: White Lumber Company, Goodyear Redwood Company. Amount diverted includes 15N/17W-35G2, 15N/17W-35J1, 15N/17W-35J2, 15N/17W-35J3 and 15N/17W-36M1. Main flume described under 15N/17W-36M1.
17N/17W-35G2 (Sheet 10)	Elk County Water District	Unnamed tributary to Bonee Gulch	(*)	(*)	(*)	Approp.	--	--	Prior 1900	Gravity; small rock dam with short lateral to main flume.*	Previous owners, purpose, extent of use and amount diverted reported under 15N/17W-35G1. Main flume described under 15N/17W-36M1.
15N/17W-35J1 (Sheet 10)	Elk County Water District	Unnamed tributary to Bonee Gulch	(*)	(*)	(*)	Approp.	--	--	Prior 1900	Gravity; small rock dam with short lateral to main flume.*	Previous owners, purpose, extent of use and amount diverted reported under 15N/17W-35G1. Main flume described under 15N/17W-36M1.
15N/17W-35J2 (Sheet 10)	Elk County Water District	Unnamed tributary to Bonee Gulch	(*)	(*)	(*)	Approp.	--	--	Prior 1900	Gravity; small rock dam with short lateral to main flume.*	Previous owners, purpose, extent of use and amount diverted reported under 15N/17W-35G1. Main flume described under 15N/17W-36M1.
15N/17W-35J3 (Sheet 10)	Elk County Water District	Unnamed tributary to Bonee Gulch	(*)	(*)	(*)	Approp.	--	--	Prior 1900	Gravity; small rock dam with short lateral to main flume.*	Previous owners, purpose, extent of use and amount diverted reported under 15N/17W-35G1. Main flume described under 15N/17W-36M1.
15N/17W-36M1 (Sheet 10)	Elk County Water District	Unnamed tributary to Bonee Gulch	(*)	(*)	(*)	Approp.	--	--	Prior 1900	Gravity; concrete dam 3 feet high, 8 feet long with 0.7 mile of 8 by 8-inch wood flume to one 27,000-gallon tank and one 28,000-gallon tank.	Previous owners, purpose, extent of use and amount diverted reported under 15N/17W-35G1.
					ROCKPORT SUBUNIT						
19N/17W-3N1 (Sheet 4)	Mrs. Phillip Smith	South Fork Ten Mile River	Irrig.	43 acres by sprinkler	7	Approp.	1.5 cfs	A-16109[b]	1946	Pump; tractor powered, 3-inch discharge directly connected to distribution system.*	This diversion system also used for 20N/17W-34N1.

* See Remarks
For lettered footnotes, see last page of table.

TABLE 5 (Continued)

DESCRIPTIONS OF SURFACE WATER DIVERSIONS IN
MENDOCINO COAST HYDROGRAPHIC UNIT

1959

Location number and Plate 2 sheet number	Diversion name and/or owner	Source	Water use in 1959			Apparent water right			Indicated date of appropriation or first use	Description of diversion system	Remarks
			Purpose	Extent and method of use	Amount diverted in acre-feet	Type	Amount	Reference			
					ROCKPORT SUBUNIT (Continued)						
M D B & M											
19N/17W-11D1 (Sheet 4)	Arthur Gray	Unnamed tributary to South Fork Ten Mile River	Irrig.	10 acres by sprinkler	8	Riparian	--	--	1951	Pump; 30-hp gasoline engine directly connected to distribution system.*	This diversion system also used for 19N/17W-14H1.
19N/17W-11E1 (Sheet 4)	Arthur Gray	South Fork Ten Mile River	Irrig. Stock.	57 acres by sprinkler 1200 head	51	Riparian	--	--	1954	Pump; 30-hp motor directly connected to distribution system.	
19N/17W-14H1 (Sheet 4)	Arthur Gray	South Fork Ten Mile River	Irrig.	9 acres by sprinkler	Not Meas.	Riparian	--	--	1951	(*)	Used diversion system of 19N/17W-11D1.
20N/17W-26L1 (Sheet 3)	Kemppe, Biaggi and Stoddard	Ten Mile River	Irrig.	5 acres by sprinkler	Not Meas.	Riparian	--	--	1946	Pump; tractor powered directly connected to distribution system.*	This diversion system also used for 20N/17W-35L1 and 35P1.
20N/17W-26P1 (Sheet 3)	Baxman Gravel Company	Ten Mile River	Indust.	Gravel plant	38	Riparian	--	--	1947	Pump; 15-hp motor with 125 feet of 4-inch pipe.	
20N/17W-34N1 (Sheet 3)	Mrs. Phillip Smith	Ten Mile River	Irrig.	11 acres by sprinkler	15	Approp.	0.48 cfs	A-16108[b]	1946	(*)	Used diversion system of 19N/17W-3N1.
20N/17W-35C1 (Sheet 3)	Kemppe, Biaggi and Stoddard	Ten Mile River	Irrig.	9 acres by sprinkler	6	Riparian	--	--	1959	Pump; motor, 3-inch discharge, directly connected to distribution system.	
20N/17W-35L1 (Sheet 3)	Kemppe, Biaggi and Stoddard	Ten Mile River	Irrig.	21 acres by sprinkler	Not Meas.	Riparian	--	--	1959	(*)	Used diversion system of 20N/17W-26L1.
20N/17W-35P1 (Sheet 3)	Kemppe, Biaggi and Stoddard	Mill Creek	Irrig.	4 acres by sprinkler	Not Meas.	Riparian	--	--	1959	(*)	Used diversion system of 20N/17W-26L1.
21N/17W-20M1 (Sheet 2)	Kate E. Thompson	DeHaven Creek	Irrig. Stock.	4 acres by sprinkler 71 head	4	Riparian	--	--	1954	Pump; 8-hp gasoline engine directly connected to distribution system.	
21N/17W-29G1 (Sheet 2)	Peter Masolini	Wages Creek	Irrig. Stock.	7 acres by sprinkler 148 head	3	Riparian	--	--	1946	Pump; tractor powered directly connected to distribution system.	

a -- Insufficient information to determine type of water right.
b -- Refers to application to appropiate water filed with the State Water Rights Board.
c -- Domestic use of less than 5 connections.

Numbering System for Surface Water Diversions

Surface water diversions are numbered to indicate their approximate location by township, range, and section within the federal land survey system. In this report, each section is subdivided into 40-acre plots and lettered as shown in the legend on each sheet of Plate 2. Diversions are numbered within each of these 40-acre plots according to the order in which they were located. For example, diversion 13N/16W-6E1, shown on sheet 14 of Plate 2 as 6E1, is the first diversion located in the SW1/4 of the NW1/4 of Section 6 in Township 13 north, Range 16 west, Mt. Diablo Base and Meridian(MDB&M).

Descriptions of Surface Water Diversions

Description, history, and other information relating to surface water diversions were obtained by field inspection, interviews with water users or their representatives, and reference to prior reports and official records. The data in Table 5 are arranged by diversion location number within each subunit. An alphabetical index of diversion owners and diversion names is included at the end of this chapter. The index includes the subunit location of each diversion and references to map and page numbers on which data concerning each appear.

The purpose or purposes of each diversion, the quantity of water diverted during the period January 1959 - December 1959, the extent of use, such as the number of acres irrigated, and the method of application of water are included in Table 5. If the purpose listed is not the usual use for that diversion, notation

is made in the remarks. The extent of domestic use is specified only when five or more connections are served. Stockwatering of less than ten head of livestock is considered to be a domestic use. The extent of irrigation use is based on the land use survey described in Chapter III.

The type of water right under which the respective diversions are considered to be made is indicated in Table 5 as the "apparent water right." The determination of this item is based upon the best information available from the owner, from files of the State Water Rights Board, from court decrees and other official records, and from other sources. The actual amount of the right, if established and known, and a reference to the source of data are also included. Although this information is believed to be accurate, it is emphasized that it is not based on sworn claims or testimony and should in no way be construed to represent a conclusive determination of water rights.

Diversions based on claimed appropriative rights are listed as appropriative, and those not based on appropriations, but for which the area of use is apparently riparian to the stream or other water source, are listed as riparian. The areas of use for many of the diversions listed as appropriative are probably riparian to water sources, but no attempt was made to make such determinations of dual bases of water rights.

For a claimed appropriative right the amount tabulated is that found in the filing, if any, or in the application, or in the latest permit or license which may have been issued in connection therewith. The reference given for an appropriation initiated

after the effective date of the Water Commission Act (1914) is the number of the application on file with the State Water Rights Board. For appropriations prior to 1914, the reference, if known, is the book and page number of the official county record in which the filing is recorded. Such filings were made in accordance with Sections 1410 and 1422 of the Civil Code as enacted in 1872, which preserved the priority of a diligent appropriator from the time of filing and enabled him to prevail over a concurrent non-statutory appropriator.

Records of Surface Water Diversions

Periodic or continuous measurements of surface water diversions were made by the Department of Water Resources during 1959 wherever it was feasible to measure the flows. Most of the diversions for nonagricultural uses, and some of those used for agriculture, were operated throughout the year. Substantially all diversion measurements were started by April or May, prior to the commencement of intensive irrigation, and the measurements were continued through December in order to obtain a complete seasonal record. The measurements were classed as estimates when data were incomplete or uncertain. A few additional diversions were located at a late stage in the survey, but no measurements or estimates of these were attempted. Results of the measurement program are summarized in Table 6. When feasible, measurements of each diversion were made at a location above the area of first use as close to the diversion intake as possible, but below any regulatory spill. Exceptions to this procedure are noted in Table 7.

TABLE 6

SUMMARY OF USE AND MEASUREMENTS
OF SURFACE WATER DIVERSIONS IN
MENDOCINO COAST HYDROGRAPHIC UNIT
IN 1959

Purpose	Total number of surface water diversions	Number of diversions active in 1959	Number of measured diversions	Measured quantity of water diverted (in acre-feet)
Irrigation and/or stock-watering	83	75	57	1,615
Municipal and/or domestic	15	14	13	736
Industrial	10	10	10	2,345
Total	108	99	80	4,696

TABLE 7

MONTHLY RECORDS OF SURFACE WATER DIVERSIONS IN

MENDOCINO COAST HYDROGRAPHIC UNIT, 1959

Location number	Diversion name or owner	Use	Point of measurement or estimate	Method of observation and calculation	Amount diverted, in acre-feet													Remarks
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total	
				FORT BRAGG SUBUNIT														
M D B & M																		
16N/17W-4N1	Ole Hervilla	Irrigation	At area of use	Sprinkler test and power record	0	0	1	1	1	1	1	1	0	0	0	0	6	
16N/17W-9C1	Arthur R. Oliver	Irrigation Stockwatering	--	Estimated	0	0	0	0	0	1[e]	0	1[e]	0	0	0	0	2*	Includes 16N/17W-9C2
16N/17W-9C2	Arthur R. Oliver	Irrigation	(*)	(*)	---------- * ----------													Included in 16N/17W-9C1
16N/17W-28B1	Masonite Corporation	Domestic	At area of use	Pump test and operation record	------ NR ---		3	2	2	2	2	2	2	--- NR --------			15*	
18N/17W-6E1	Union Lumber Company	Industrial	—	Estimated	78	71	78	52	51	52	54	51	52	52	76	81	748	
18N/17W-9C1	Union Lumber Company	Industrial	—	Estimated	0	0	0	35	55	53	55	55	53	------ NR--------			306	
18N/17W-16D1	City of Fort Bragg	Municipal	At filter plant	Sparling meter and power record	43	42	47	50	63	66	68	61	49	46	43	40	618*	Includes 18N/17W-28E1, estimated to be 25% of total. Total also includes an estimated 4.5 acre-feet per month used for back wash
18N/17W-18J1	Union Lumber Company	Industrial	—	Estimated	14	12	14	13	14	13	14	14	13	14	13	14	162	
18N/17W-18N1	Union Lumber Company	Industrial	--	Estimated	55	49	55	53	55	53	55	55	53	55	53	55	646	
18N/17W-19P1	Donald S. Babcock	Irrigation	At area of use	Sprinkler test, operation record	0	0	0	0	0	0	1	1	1	0	0	0	3	
18N/17W-19N1	Bill Olander	Industrial	At area of use	Pump test and operation record	34	30	34	32	34	33	34	33	33	34	33	34	398*	Includes 18N/17W-19P1
18N/17W-19P1	Bill Olander	Industrial	(*)	(*)	---------- * ----------													Included in 18N/17W-19N1
18N/17W-28E1	City of Fort Bragg	Municipal	(*)	(*)	---------- * ----------													Included in 18N/17W-16D1
19N/17W-15L1	Andrew Kaijankoski	Irrigation	At area of use	Sprinkler test and operation record	0	0	6	0	0	0	1	1	0	0	0	0	2	

* See remarks

e Monthly value estimated

--**-- Diversion estimated for period indicated

--NR-- No record for period indicated

TABLE 7 (Continued)

MONTHLY RECORDS OF SURFACE WATER DIVERSIONS IN

MENDOCINO COAST HYDROGRAPHIC UNIT, 1959

Location number	Diversion name or owner	Use	Point of measurement or estimate	Method of observation and calculation	Amount diverted, in acre-feet													Remarks
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total	
				OTAYALA RIVER SUBUNIT														
M D B & M																		
8N/13W-2hE1	Sea View Lumber Company	Domestic Industrial	Near area of use	Estimated	----------**----------												2	
9N/12W-5N1	Stanley Richardson	Irrigation Stockwatering	At area of use	Sprinkler test and power record	0	0	0	0	6	9	8	6	1	0	0	0	30	Stockwatering not included.
11N/15W-27E1	John and Ida Bower	Industrial Domestic	At pump	Pump test and power record	1	2	2	2	2	2	1	1	1	0	0	0	14	
11N/15W-27G1	John and Ida Bower	Municipal	1 mile below intake	Staff gage and depth - flow relationship	1	1	2	2	3	1	1	0	0	0	0	1	12	
				NAVARRO RIVER SUBUNIT														
M D B & M																		
13N/14W-2G1	Archie Schoenahl	Irrigation	At area of use	Sprinkler test and power record	0	0	0	0	7	29	12	7	3	0	0	0	58	
13N/14W-2K1	Grover Williams	Irrigation	At area of use	Sprinkler test and power record	0	0	0	0	10	11	8	5	2	0	0	0	36	
13N/14W-2R1	Archie Schoenahl	Irrigation	At area of use	Sprinkler test, operation record	0	0	0	0	0	0	0	1	0	0	0	0	1	
13N/14W-11F1	G. P. Bradford	Irrigation	At area of use	Sprinkler test and power record	0	0	0	0	12	6	2	1	0	0	0	0	21*	Includes 13N/14W-11K1.
13N/14W-11K1	G. P. Bradford	Irrigation	(*)	(*)	---------- * ----------													Included in 13N/14W-11F1.
13N/14W-11E1	G. P. Bradford	Irrigation	At area of use	Sprinkler test and power record	0	0	0	0	7	3	2	1	1	0	0	0	14	
14N/14W-17L1	Leo L. Sanders	Irrigation	At area of use	Sprinkler test and power record	0	0	0	0	6	10	10	7	1	4	2	0	40	
14N/14W-17N1	Bob Piper	Irrigation	At area of use	Sprinkler test and power record	0	0	0	0	9	13	12	13	4	0	0	0	51	
14N/14W-17N2	Mac-Young Lumber Company	Industrial	At area of use	Pump test and operation record	0	0	0	0	0	1	0	0	1	0	11	0	13	
14N/14W-2[illegible]2	J. E. Baxman	Irrigation	At area of use	Sprinkler test and power record	0	0	0	0	3	4	3	3	1	0	0	0	14	
14N/14W-3K1	Rawlee Brothers	Irrigation	At area of use	Sprinkler test and power record	0	0	0	0	1	10	6	5	1	0	0	0	23	

* See remarks

e Monthly value estimated

--*-- Diversion estimated for period indicated

--NR-- No record for period indicated

TABLE 7 (Continued)

MONTHLY RECORDS OF SURFACE WATER DIVERSIONS IN

MENDOCINO COAST HYDROGRAPHIC UNIT, 1959

Location number	Diversion name or owner	Use	Point of measurement or estimate	Method of observation and calculation	Amount diverted, in acre-feet												Remarks
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total	
				NAVARRO RIVER SUBUNIT (CONTINUED)														
M D B & M																		
14N/14W-34A1	R. M. Zane	Irrigation	At area of use	Sprinkler test and power record	0	0	0	0	4	9	10	8	3	3	0	0	37	
14N/14W-34D1	M. L. Farrar	Irrigation	At area of use	Sprinkler test and power record	0	0	0	0	6	10	9	6	1	0	0	0	32	
14N/15W-11E1	Oliver W. Winkler	Irrigation Stockwatering	At area of use	Pump and sprinkler test, and power record	0	0	0	0	0	42	49	49	16	0	0	0	156*	Stockwater not included.
14N/15W-11G1	Clyde E. Price	Irrigation	At area of use	Sprinkler test and power record	0	0	0	0	2	0	0	0	0	0	0	0	2	
14N/15W-11J1	M. Cecil and Alice, James C. and Josephine Gowan	Irrigation Stockwatering	At area of use	Sprinkler test and power record	0	0	0	1	11	16	18	15	7	1	1	0	70*	Stockwater not included.
14N/15W-11J2	Byron Gowan	Irrigation	At area of use	Sprinkler test and power record	0	0	0	0	6	5	6	10	2	0	0	0	29	
14N/15W-11K1	Archie Schoenahl	Irrigation	At area of use	Sprinkler test and power record	0	0	0	0	7	8	12	12	5	0	0	0	44	
14N/15W-12D1	Ethel I. Williams	Irrigation Stockwatering	At area of use	Sprinkler test, operation record	0	0	0	0	2	5	2	1	0	0	0	0	10*	Stockwater not included.
14N/15W-12N1	M. Cecil and Alice M., James C. and Josephine Gowan	Irrigation	At area of use	Sprinkler test and power record	0	0	0	0	12	14	13	15	6	0	0	0	60	
14N/15W-13G1	Arthur Gowan	Irrigation	At area of use	Sprinkler test and operation record	0	0	0	0	0	0	1	0	1	0	0	0	2	
				POINT ARENA SUBUNIT														
M-D B & M																		
11N/15W-21P1	Melvin S. Wilson	Irrigation Stockwatering	At area of use	Sprinkler test and power record	0	0	0	0	0	0.3	0	0	0	0	0	0	0.3*	Stockwater not included.
11N/15W-27D1	John and Ida Bower	Municipal	At storage tanks	Pump test power record	1	1	2	1	1	----------	----------	----------	NR	----------	----------	----------	6	
11N/15W-28B1	John and Ida Bower	Municipal	At storage tanks	Pump test and power record	1	0	1	1	1	2	4	4	3	4	4	3	28	
12N/13W-4J1	William F. Walsh	Irrigation	At area of use	Sprinkler test and powsr record	0	0	0	0	4	5	4	4	1	1	0	0	19	
12N/16W-11K1	Reed R. Farnsworth	Irrigation	At area of use	Sprinkler test and power record	0	0	0	0	0	5	4	5	2	0	0	0	16	
13N/16W-6E1	John Acquistapace	Irrigation	At area of use	Sprinkler test and power record	0	0	0	0	6	9	9	7	3	2	0	0	36	

* See remarks
e Monthly value estimated
--**-- Diversion estimated for period indicated
--NR-- No record for period indicated

TABLE 7 (Continued)

MONTHLY RECORDS OF SURFACE WATER DIVERSIONS IN

MENDOCINO COAST HYDROGRAPHIC UNIT, 1959

Location number	Diversion name or owner	Use	Point of measurement or estimate	Method of observation and calculation	Amount diverted, in acre-feet												Remarks
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total	
				POINT ARENA SUBUNIT (CONTINUED)														
M D B & M																		
13N/16W-7E1	James P. Biaggi	Irrigation	At area of use	Sprinkler test and power record	0	0	0	0	4	5	4	3	1	1	0	0	18	
13N/16W-18C1	Herbert Richardson	Irrigation	At area of use	Sprinkler test and power record	0	0	0	1	6	9	10	12	5	1	0	0	44	
13N/16W-19N1	Elmer L. Walker	Irrigation Stockwatering	At area of use	Sprinkler test and power record	0	0	0	0	5	6	5	5	3	0	0	0	24*	Stockwater not included.
13N/16W-31J1	Vernon Kandall	Irrigation Stockwatering	At area of use	Sprinkler test and power record	0	0	0	0	1	9	2	4	4	0	0	0	20*	Stockwater not included.
13N/16W-33M1	Oscar J. Olson	Irrigation Stockwatering	At area of use	Sprinkler test and power record	0	0	0	0	6	7	5	4	2	0	0	0	24*	Stockwater not included.
13N/17W-12K1	James P. Biaggi	Irrigation	At area of use	Sprinkler test and power record	0	0	0	1	4	7	7	7	4	0	0	0	30	
13N/17W-12R1	Herbert Richardson	Irrigation	At area of use	Sprinkler test and power record	0	0	0	0	3	3	5	3	2	0	0	0	16	
13N/17W-22J1	James P. Biaggi	Irrigation	At area of use	Sprinkler test and power record	0	0	0	0	0	0	5	15	10	0	0	0	30	
13N/17W-23M1	James P. Biaggi	Irrigation	At area of use	Sprinkler test and power record	0	0	0	0	6	8	7	2	2	1	0	0	26	
13N/17W-24E1	James P. Biaggi	Irrigation	At area of use	Sprinkler test and power record	0	0	0	0	2	13	25	32	18	0	0	0	90	
13N/17W-35G1	Charles, Leslie and William Stornetta	Irrigation Stockwatering	At area of use	Sprinkler test and power record	0	0	0	0	0	8	21	19	8	0	0	0	56*	Stockwater not included.
13N/17W-35J1	Charles, Leslie and William Stornetta	Irrigation Stockwatering	At area of use	Sprinkler test and power record	0	0	0	0	0	0	24	35	15	0	0	0	74*	Stockwater not included.
13N/17W-36L1	George Dewey Stornetta	Irrigation Stockwatering	At area of use	Sprinkler test and power record	0	0	0	0	2	13	12	12	9	0	0	0	48*	Stockwater not included.
13N/17W-36M1	John Stornetta	Irrigation Stockwatering	At area of use	Sprinkler test and power record	0	0	0	0	1	12	15	14	6	0	0	0	48*	Stockwater not included.
13N/17W-36M3	John Stornetta	Irrigation	At area of use	Sprinkler test and power record	0	0	0	0	0	13	18	17	6	0	0	0	54	
13N/17W-36R1	Mrs. Margaret Bishop, et al.	Industrial	- - - - -	Estimated	0	0	0	0	0	0	2	3	4	5	5	1	20	
13N/17W-36R2	Mrs. Margaret Bishop, et al.	Irrigation Stockwatering	At area of use	Sprinkler test and power record	0	0	0	0	6	8	4	6	3	1	0	0	28*	Stockwater not included.
14N/16W-19L1	Martin Christiansen	Irrigation	At area of use	Sprinkler test and power record	0	0	0	0	1	2	2	2	1	0	0	0	8	

* See remarks

e Monthly value estimated

--e*-- Diversion estimated for period indicated

--NR-- No record for period indicated

TABLE 7 (Continued)

MONTHLY RECORDS OF SURFACE WATER DIVERSIONS IN

MENDOCINO COAST HYDROGRAPHIC UNIT, 1959

Location number	Diversion name or owner	Use	Point of measurement or estimate	Method of observation and calculation	Amount diverted, in acre-feet												Remarks
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total	
				POINT ARENA SUBUNIT (CONTINUED)														
M D B & M																		
14N/16W-31E1	Beal Brothers	Irrigation	At area of use	Sprinkler test and power record	0	0	1	3	8	8	12	11	5	0	2	3	53	
14N/17W-11R1	Galetti Brothers	Irrigation	At area of use	Sprinkler test and power record	0	0	0	0	2	6	3	3	0	0	0	0	14	
14N/17W-13E1	Henry Galetti	Irrigation	At area of use	Sprinkler test and power record	0	0	0	0	0	0	0	2	0	0	0	0	2	
15N/17W-35G1	Elk County Water District	Domestic Industrial	At storage tanks	Pump test and operation record	4	3	3	3	4	4	5	7	7	5	5	5	55*	Includes 15N/17W-35G2, 15N/17W-35J1, 15N/17W-35J2, 15N/17W-35J3, and 15N/17W-36M1
15N/17W-35G2	Elk County Water District	Domestic Industrial	(*)	(*)	----------						*							Included in 15N/17W-35G1
15N/17W-35J1	Elk County Water District	Domestic Industrial	(*)	(*)	----------						*							Included in 15N/17W-35G1
15N/17W-35J2	Elk County Water District	Domestic Industrial	(*)	(*)	----------						*							Included in 15N/17W-35G1
15N/17W-35J3	Elk County Water District	Domestic Industrial	(*)	(*)	----------						*							Included in 15N/17W-35G1
15N/17W-36M1	Elk County Water District	Domestic Industrial	(*)	(*)	----------						*							Included in 15N/17W-35G1
				ROCKPORT SUBUNIT														
M D B & M																		
19N/17W-3N1	Mrs. Phillip Smith	Irrigation	At area of use	Sprinkler test and operation record	e	0	0	0	1	0	1	4	1	0	0	0	7	
19N/17W-11D1	Arthur Gray	Irrigation Stockwatering	At area of use	Sprinkler test and operation record	0	0	0	0	1	2	2	2	1	0	0	0	8*	Stockwater not included.
19N/17W-11E1	Arthur Gray	Irrigation Stockwatering	At area of use	Sprinkler test and power record	0	0	0	0	4	12	17	17	1	0	0	0	51*	Stockwater not included.
20N/17W-26P1	Baxman Gravel Company	Industrial	At area of use	Nozzle test and operation record	0	0	4	4	1	3	7	6	2	0	3	8	38	
20N/17W-34N1	Mrs. Phillip Smith	Irrigation	At area of use	Sprinkler test and operation record	0	0	0	0	2	0	2	8	3	0	0	0	15	
20N/17W-35C1	Kemppe, Biaggi and Stoddard	Irrigation	At area of use	Sprinkler test and power record	0	0	0	0	0	0	1	4	1	0	0	0	6	
21N/17W-20M1	Kate E. Thompson	Irrigation Stockwatering	At area of use	Sprinkler test and operation record	0	0	0	0	1	0	1	1	1	0	0	0	4*	Stockwater not included.

* See remarks
e Monthly value estimated
--**-- Diversion estimated for period indicated
--NR-- No record for period indicated

TABLE 7 (Continued)

MONTHLY RECORDS OF SURFACE WATER DIVERSIONS IN

MENDOCINO COAST HYDROGRAPHIC UNIT, 1959

Location number	Diversion name or owner	Use	Point of measurement or estimate	Method of observation and calculation	Amount diverted, in acre-feet												Remarks
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total	
				ROCKPORT SUBUNIT (CONTINUED)														
M D B & M																		
21N/17W-29G1	Peter Masolini	Irrigation Stockwatering	At area of use	Sprinkler test and operation record	0	0	0	0	0	1	1	1	0	0	0	0	3*	Stockwater not included.

* See remarks

e Monthly value estimated

--*-- Diversion estimated for period indicated

--NR-- No record for period indicated

The total amount of water diverted at the 80 diversions for which measurements were reported was 4,696 acre-feet, of which 1,615 acre-feet were for irrigation and stockwatering, 736 acre-feet were for urban purposes, and 2,345 acre-feet were for industrial use at lumber mills.

Determinations of diverted quantities for other than gravity diversions were made primarily by the testing of pumps and sprinkler systems. In cases where the flow from a reservoir could not be measured and there was no inflow, a staff gage or stake was set at the high water point and observations of the change in storage were used to obtain an estimate of the amount of water used. Observations were supplemented by readings and records kept by water users. Interviews were also made to determine possible abrupt changes in operation between readings.

The dashes in Table 7 indicate that insufficient data were available on which to base a diversion estimate for the period indicated. When the diversion for a given period is known to have been zero, it is so indicated. Notations regarding extent of irrigation period indicate the overall period of irrigation, but do not necessarily mean that daily or continuous irrigation was practiced throughout the period. Notations that a stream source was dry at a certain time indicate that the source was essentially dry, in that stream flow was so low as to make surface diversion infeasible.

Index to Surface Water Diversion

For convenience, an alphabetical index of diversion owners or diversion names, along with the subunit location of

TABLE 8

INDEX TO SURFACE WATER DIVERSIONS IN MENDOCINO COAST HYDROGRAPHIC UNIT

1959

Diversion name or owner	Location number	Subunit	References	
			Plate 2 Sheet No.	Text and appendixes Page Nos.
Acquistapace, John	13N/16W-6E1	Point Arena	14	35,45,65,C-11
Avila, August J.	18N/17W-8P1	Fort Bragg	5	29,63
Babcock, Donald S.	18N/17W-18P1	Fort Bragg	5	29,43,63,C-10
Baxman, J. E.	14N/14W-28E1	Navarro River	13	32,44,64
Baxman Gravel Company	20N/17W-26P1	Rockport	3	38,47
Beal Brothers	14N/16W-31E1	Point Arena	12	36,47,66,C-11
Biaggi	See Kemppe, Biaggi and Stoddard			
Biaggi, James P.	13N/16W-7E1	Point Arena	14	35,46,65
	13N/17W-12K1	Point Arena	14	35,46,65,C-11
	13N/17W-22J1	Point Arena	14	35,46,65,C-11
	13N/17W-23M1	Point Arena	14	35,46,65,C-11
	13N/17W-24E1	Point Arena	14	35,46,65,C-11
Bishop, Margaret	13N/17W-36R1	Point Arena	14	36,46
	13N/17W-36R2	Point Arena	14	36,46,66
Bower, John and Ida	11N/15W-27B1	Gualala River	18	31,44,C-10
	11N/15W-27Q1	Gualala River	18	31,44,C-10
	11N/15W-27D1	Point Arena	18	34,45,C-10
	11N/15W-28B1	Point Arena	18	34,45,C-10
Bradford, G. P.	13N/14W-11F1	Navarro River	15	32,44,64
	13N/14W-11K1	Navarro River	15	32,44,64
	13N/14W-14B1	Navarro River	15	32,44,64
California Department of Natural Resources, Division of Forestry	17N/15W-5K1	Fort Bragg	7	28,C-10
	17N/16W-4C1	Fort Bragg	6	28,63,C-10
	18N/16W-33N1	Fort Bragg	6	28,63,C-10
Casper Lumber Company	18N/17W-31N1	Fort Bragg	5	30
Christiansen, Martin	14N/16W-19L1	Point Arena	12	36,46,66
Elk County Water District	15N/17W-35G1	Point Arena	10	37,47
	15N/17W-35G2	Point Arena	10	37,47
	15N/17W-35J1	Point Arena	10	37,47
	15N/17W-35J2	Point Arena	10	37,47
	15N/17W-35J3	Point Arena	10	37,47
	15N/17W-36M1	Point Arena	10	37,47
Farnsworth, Reed R.	12N/16W-14K1	Point Arena	16	35,45,65
Farrer, John T.	13N/14W-2R1	Navarro River	15	32
Farrer, M. L.	14N/14W-34D1	Navarro River	13	33,45,64,C-10
Ford, E. A.	14N/14W-29A1	Navarro River	13	33,64
	14N/14W-29H1	Navarro River	13	33,64
Fort Bragg, City of	18N/17W-16D1	Fort Bragg	5	29,43,C-11
	18N/17W-28E1	Fort Bragg	5	29,43,C-11

TABLE 8 (Continued)

INDEX TO SURFACE WATER DIVERSIONS IN MENDOCINO COAST HYDROGRAPHIC UNIT

1959

Diversion name or owner	Location number	Subunit	References	
			Plate 2 Sheet No.	Text and appendixes Page Nos.
Galbreath, Fred B.	12N/13W-13E1	Navarro River	17	31,63
Galetti Brothers	14N/17W-11R1	Point Arena	12	36,47,66,C-11
Galetti, Henry	14N/17W-13E1	Point Arena	12	36,47,66
Gowan, Byron	14N/15W-11J2	Navarro River	12	33,45,64
Gowan, M. Cecil, Alice H., J. C., and Josephine	14N/15W-11J1	Navarro River	12	33,45,64
	14N/15W-12N1	Navarro River	12	34,45,64
Gowan, Arthur	14N/15W-13D1	Navarro River	12	34,64
	14N/15W-13G1	Navarro River	12	34,45,65
	14N/15W-13G2	Navarro River	12	34,65
Gray, Arthur	19N/17W-11D1	Rockport	4	38,47,66
	19N/17W-11E1	Rockport	4	38,47,66
	19N/17W-14H1	Rockport	3	38,66
Hervilla, Ole	16N/17W-4N1	Fort Bragg	8	28,43
Kaijankoski, Andrew	19N/17W-15L1	Fort Bragg	4	30,43,63
Kendall, Vernon	13N/16W-31J1	Point Arena	14	35,46,65,C-11
Kemppe, Biaggi and Stoddard	20N/17W-26L1	Rockport	3	38,66
	20N/17W-35C1	Rockport	3	38,47,66
	20N/17W-35L1	Rockport	3	38,66
	20N/17W-35P1	Rockport	3	38,66
Mac-Young Lumber Company	14N/14W-17N2	Navarro River	13	32,44,C-11
Mallory, Cecil R.	16N/17W-8P1	Fort Bragg	8	28,63
Masolini, Peter	21N/17W-29G1	Rockport	2	38,48,66
Masonite Corporation	16N/17W-28B1	Fort Bragg	8	28,43
Mathias, Robert J.	14N/14W-19H1	Navarro River	13	32,64,C-10
Mialliard, Mrs. J. W.	12N/13W-6N1	Point Arena	17	34,65
Newman, Irving R.	14N/14W-19R1	Navarro River	13	32,64
Nonella, Charles and Peter	15N/17W-23N1	Point Arena	10	37,66
Nye, Mrs. Tygne	19N/17W-30F1	Fort Bragg	4	30,63
Olander, Bill	18N/17W-19N1	Fort Bragg	5	29,43
	18N/17W-19P1	Fort Bragg	5	29,43,C-10
Oliver, Arthur R.	16N/17W-9C1	Fort Bragg	8	28,43,63
	16N/17W-9C2	Fort Bragg	8	28,43,63
Olson, Oscar J.	13N/16W-33M1	Point Arena	14	35,46,65
Orchard, C. B.	12N/13W-11B1	Navarro River	17	31,63
	12N/13W-11C1	Navarro River	17	31,63
Piper, Bob	14N/14W-17N1	Navarro River	13	32,44,64

TABLE 8 (Continued)

INDEX TO SURFACE WATER DIVERSIONS IN MENDOCINO COAST HYDROGRAPHIC UNIT

1959

Diversion name or owner	Location number	Subunit	References	
			Plate 2 Sheet No.	Text and appendixes Page Nos.
Prather, Marion	14N/14W-20L1	Navarro River	13	32,64
Price, Clyde E.	14N/15W-11G1	Navarro River	12	33,45,64
Rawles Brothers	14N/14W-28K1	Navarro River	13	33,45,64,C-11
	14N/14W-28R1	Navarro River	13	33,64,C-11
Richardson, Donald M.	9N/13W-13L1	Gualala River	21	31,63,C-12
	9N/13W-24B1	Gualala River	21	31,63
Richardson, Harold F.	9N/14W-3J1	Gualala River	21	31,63
Richardson, Herbert	13N/16W-18C1	Point Arena	14	35,46,65,C-11
	13N/17W-12R1	Point Arena	14	35,46,65,C-11
Richardson, Stanley	9N/12W-5N1	Gualala River	21	30,44,63
	9N/12W-16G1	Gualala River	21	30
Sanders, Leo L.	14N/14W-17L1	Navarro River	13	32,44,64
Schoenahl, Archie	13N/14W-2G1	Navarro River	15	31,44,64
	14N/15W-11K1	Navarro River	12	33,45,64
Sea-View Lumber Corporation	8N/13W-24E1	Gualala River	22	30,44
Smith, Mrs. Phillip	19N/17W-3N1	Rockport	4	37,47,66
	20N/17W-34N1	Rockport	3	38,47,66
Stoddard	See Kemppe, Biaggi and Stoddard			
Stornetta, Charles, Leslie and William	13N/17W-35G1	Point Arena	14	36,46,65,C-11
	13N/17W-35J1	Point Arena	14	36,46,65,C-11
	13N/17W-36M2	Point Arena	14	36,65,C-11
Stornetta, George Dewey	13N/17W-36L1	Point Arena	14	36,46,65,C-11
Stornetta, John	13N/17W-36M1	Point Arena	14	36,46,65,C-11
	13N/17W-36M3	Point Arena	14	36,46,65,C-11
Thompson, Kate E.	21N/17W-20M1	Rockport	2	38,47,66
Union Lumber Company	18N/17W-6E1	Fort Bragg	5	29,43,C-10
	18N/17W-9C1	Fort Bragg	5	29,43,C-10
	18N/17W-18J1	Fort Bragg	5	29,43,C-10
	18N/17W-18N1	Fort Bragg	5	29,43,C-10
Walker, Elmer L.	13N/16W-19N1	Point Arena	14	35,46,65,C-11
Walsh, William F.	12N/16W-4J1	Point Arena	16	34,45,65,C-11
Williams, Ethel I.	14N/15W-12D1	Navarro River	12	33,45,64
Williams, Grover	13N/14W-2K1	Navarro River	15	31,44,64
Wilson, Melvin S.	11N/15W-21P1	Point Arena	18	34,45,64
Winkler, Oliver W.	14N/15W-11E1	Navarro River	12	33,45,64,C-12
Zane, R. M.	14N/14W-34A1	Navarro River	13	33,45,64,C-10

each diversion and reference to map and page numbers on which data concerning each appear, is shown on Table 8.

Imports and Exports

There are no surface water supplies imported or exported in the Mendocino Coast Hydrographic Unit.

Consumptive Use

In the Mendocino Coast Hydrographic Unit, the largest quantity of water diverted was for industrial use. However, the largest consumptive use was for irrigated agriculture. Consumptive use is defined as: (1) water consumed by vegetative growth in transpiration and building of plant tissue, and water evaporated from adjacent soil, (2) water evaporated from water surfaces and from foliage, and (3) water similarly consumed and evaporated by urban and nonvegetative types of land use. Significant climatic variations, as related to consumptive use, occur among the subunits. For example, prevailing fogs and cool temperatures along the coast tend to reduce the consumptive use in these areas.

A substantial portion of the water diverted in the unit was measured or estimated during 1959. Of the 2,139 acres of irrigated land in the hydrographic unit, measurements were made of water applied to 1,989 acres. These measured diversions for irrigation totaled 1,615 acre-feet, or 0.81 acre-feet per acre. The water applied to the remaining 150 acres of irrigated land was estimated to also average 0.81 acre-feet per acre, giving an estimated application for the total area of 1,737 acre-feet.

The total estimated consumptive use of crops in the unit as shown in Table 9 is based on values from Table 14, State Water Resources Board Bulletin No. 2, "Water Utilization and Requirements in California," 1955.

TABLE 9

ESTIMATED MEAN SEASONAL CONSUMPTIVE USE OF CROPPED LANDS IN MENDOCINO COAST HYDROGRAPHIC UNIT

Crop	Acres	Total seasonal consumptive use	
		acre-feet/acre	acre-feet
Grain and Hay	317	1.8	571
Field Crops	22	1.8	40
Pasture	1,350	3.1	4,185
Truck Crops	103	1.7	175
Deciduous Fruit	285[a/]	2.7	769
Semiagriculture	62	3.1	192
Total Irrigated	2,139[b/]	2.8[c/]	5,932

a/ Includes 10 acres of orchard double cropped to pasture.
b/ Does not include 190 acres of idle land.
c/ Total consumptive use in acre-feet divided by total irrigated acreage.

The mean unit values of consumptive use in Bulletin No. 2 indicate that the irrigated lands shown in Table 9 would, under average conditions, consume 2,388 acre-feet of applied irrigation water, or 1.07 acre-feet per acre. The actual consumptive use of applied water for 1959 is estimated to be 0.66 acre-feet per acre or approximately 80 percent of the 0.81 acre-feet per acre which

was diverted. The 80 percent factor takes into account the efficiency of irrigation, which is for the most part by sprinklers. The difference between the mean value of 1.07 acre-feet per acre from Bulletin No. 2, and the estimated 1959 value of 0.66 acre-feet per acre for consumptive use of applied irrigation water, may be due to one or both of the following posssibilities:

1. Precipitation and runoff were low during the 1959 season, and crops were not adequately irrigated to obtain optimum yield.
2. Bulletin No. 2 values are intended to be general for the unit and may not apply accurately due to micro-climatic changes known to occur throughout the area. The unit is composed of widely varying climatic zones; principally, the immediate coastal strip surrounding Fort Bragg and Point Arena, and the inland coastal Anderson Valley containing Boonville and Philo.

Measured surface water diversions for municipal use amount to 668 acre-feet for the 1959 calendar year and represent most of the demand for municipal water in the unit. Opportunity for reuse of municipal water is very limited; therefore, diversions may be considered equal to consumptive use, plus waste. The existing total municipal and domestic demand for water in the unit for the present population of 17,400 is 1,365 acre-feet per year, based on an estimated per capita demand of 70 gallons per day.

CHAPTER III - LAND USE

The results of a survey of water uses and surface water diversion facilities in the Mendocino Coast Hydrographic Unit were presented in Chapter II. This chapter contains the results of a survey of present land use as related to water use. Also included is a brief summary of historical conditions. A thorough knowledge of the nature and extent of land and water uses under existing conditions within this hydrographic unit is one of the primary requisites in evaluating future water requirements within the unit.

Historical Land Use

As previously mentioned, the beginning of the development of the Mendocino Coast Hydrographic Unit took place in the 1850's. The first permanent white settlement was established in April 1852, at Pine Grove about five miles south of the now thriving City of Fort Bragg. Later in the year, the first redwood lumber mill on the Pacific Coast was constructed on a site which later bacame the permanent settlement of Mendocino City. Lumbering flourished there as did mining in other parts of the State, and by 1872, there were 19 sawmills producing some 50 million board feet of lumber annually. With the increased population, agriculture increased, although there is little data as to the acreage of lands involved.

Present Land Use

A detailed survey of land uses in the Mendocino Coast Hydrographic Unit was conducted in 1959. The survey was used to determine the type, location, and aerial extent of presently irrigated and dry farmed lands, recreational developments, and urban areas. The results of the land use survey are presented in Table 10. The values represent gross acreages, including non-water service areas such as roads, ditches, building and storage areas, and miscellaneous rights-of-way, which occur within the mapped areas.

Methods and Procedures

The surveys were conducted so that all field mapping was done on aerial photographs having a scale of 1:20,000. The field mapping was done as accurately as possible within the limit imposed by the scale of the photographs and by the access to the land as provided by roads and foot trails. No land parcels less than two acres in size were delineated since the probable yearly water use would be somewhat below the ten acre-foot per annum minimum water use established for this survey.

After completion of the field mapping on aerial photographs, the mapping delineations were transferred to U. S. Geological Survey 7.5 minute quadrangle sheets having a scale of 1:24,000. This procedure was necessary in order to provide base maps of a reasonable size and constant scale. Acreage determinations were made from the quadrangle sheets using "cutting and weighing" procedures.

Irrigated Lands

Irrigated lands include all agricultural land to which water is applied. Acreages of irrigated lands are reported in Table 11 by subunits, including the crop grown. These irrigated lands are segregated into pasture, alfalfa hay and barley and oats, other hay and grain, orchard, corn, truck crops and idle irrigated lands. Pasture was further subdivided into mixed and native pasture. Orchard was further divided into pears and apples. Idle irrigated lands are those lands which were not irrigated in the year of survey, but which had been irrigated within the preceding three years.

The acreages reported are gross determinations without any reductions for roads, farmsteads, irrigation features, or other types of nonirrigated inclusions within the land parcels that were too small to delineate within the mapping scale.

Naturally High Water Table Lands

Lands which have a water table at or near the ground surface support vegetation by natural subirrigation. These high water table lands exist as mountain meadows or adjacent to lakes or streams. These are listed in Table 10 as, "meadowlands" and "marshlands."

Dry-Farmed Lands

Dry-farmed lands are those lands normally planted to a crop, but which do not receive applied water. This includes all lands so farmed whether or not a crop is produced in the year

of survey. Dry-farmed grain crops comprise the largest acreage within this category. Dry-farmed lands are called "idle," if entirely uncultivated in the year of survey and "fallow" if tilled, but without a crop.

It should be noted that the term "dry-farmed" as used herein refers to the farming practice on these lands and not to a lack of soil moisture.

Urban Lands

Urban lands include the total areas of cities, towns, small communities, and industrial plots which are large enough to be delineated. Also included are parks, golf courses, and cemeteries, within or near urban boundaries. The acreages represent gross delineations, including streets and vacant lots, and are, therefore, not necessarily fully developed at the present time. In the survey, the boundaries of urban communities were delineated to include all lands with a density of at least one house per two acres.

Recreational Lands

Recreational lands are mapped on aerial photographs in the field in four categories: (1) residential; (2) commercial; (3) camp and trailer sites; and (4) parks. Recreational residential lands include permanent and summer home tracts within a primarily recreational area. The estimated density of homes per acre was also indicated. Recreational commercial lands include those containing motels, resorts, hotels, stores, restaurants, and

Example of land use delineated on aerial photograph

Legend

nG3 . . . dry farm, oats
nG6 . . . dry farm, miscellaneous and mixed hay and grain
nS5 . . . cemetery, not irrigated
U . . . Urban
UR . . . Residential, one and two family units
NR 2. . . Residential, three to four houses per acre
NV . . . Native Vegetation

TABLE 10

LAND USE IN MENDOCINO
COAST HYDROGRAPHIC UNIT, 1959
(in acres)

Subunit and county	Irrigated lands	Meadowlands	Marsh lands	Dry-farmed lands	Urban lands	Recreational lands
Fort Bragg						
Mendocino County	147	318	24	84	5,202	4,561
Gualala River						
Mendocino County	14	0	0	44	228	424
Sonoma County	19	91	0	165	140	15
Navarro River						
Mendocino County	847	24	0	1,115	393	729
Point Arena						
Mendocino County	1,087	176	0	1,039	650	2,453
Rockport						
Mendocino County	180	117	0	285	60	135
SUMMARY:						
Mendocino County	2,275	635	24	3,328	6,463	8,302
Sonoma County	19	91	0	165	140	15
TOTAL	2,294	726	24	3,493	6,673	8,317

TABLE II

IRRIGATED LANDS IN
MENDOCINO COAST HYDROGRAPHIC UNIT, 1959

(In acres)

Location Number	Diversion Name Or Owner	Pasture		Alfalfa Hay and Pasture	Hay		Other Hay and Grain	Orchard		Corn	Truck Crops	Total Lands Irrigated	Idle Irrigated Lands	Total
		Native	Mixed		Barley	Oats		Pears	Apples					
						Fort Bragg Subunit								
M D B & M														
16N/17W-9C1 16N/17W-9C2	Arthur R. Oliver	35										35		35
16N/17W-8P1	Cecil R. Mallory												5	5
17N/16W-4C1	California Department of Natural Resources										3	3		3
18N/16W-33N1	California Department of Natural Resources										2	2		2
18N/17W-8P1	August J. Avilla										10*	10		10
18N/17W-18P1	Donald S. Babcock		5									5		5
19N/17W-15L1	Andrew Kaijankoski						11					11		11
19N/17W-30F1	Tygne Nye												67	67
Lands irrigated by ground water		—	3	—	—	—	—	—	1	—	5	9	—	9
Total Fort Bragg Subunit		35	8	0	0	0	11	D	1	0	20	75	72	147
						Gualala River Subunit								
M D B & M														
9N/12W-5N1	Stanley Richardson		17									17		17
9N/13W-13L1	Donald M. Richardson												7	7
9N/13W-24B1	Donald M. Richardson	7										7		7
9N/14W-3J1	Harold F. Richardson		2									2		2
Total Mendocino County		7	0	0	0	0	0	0	0	0	0	7	7	14
Total Sonoma County		0	19	0	0	0	0	0	0	0	0	19	0	19
Total Gualala River Subunit		7	19	0	0	0	D	0	0	0	0	26	7	33
						Navarro River Subunit								
M D B & M														
12N/13W-11B1 12N/13W-11C1	C. B. Drchard		21									21		21
12N/13W-13E1	Fred Galbreath		23									23		23

* Received partial irrigation

TABLE II (Continued)

IRRIGATED LANDS IN

MENDOCINO COAST HYDROGRAPHIC UNIT, 1959

(In acres)

Location Number	Diversion Name Or Owner	Pasture		Alfalfa Hay and Pasture	Hay		Other Hay and Grain	Orchard		Corn	Truck Crops	Total Lands Irrigated	Idle Irrigated Lands	Total
		Native	Mixed		Barley	Oats		Pears	Apples					
					Navarro River Subunit (Continued)									
M D B & M														
13N/11W-2G1	Archie Schoenahl								64			64		64
13N/14W-2K1	Grover Williams								18			18		18
13N/14W-11F1 13N/14W-11K1	G. P. Bradford		15									15		15
13N/14W-14B1	G. P. Bradford		16									16		16
14N/14W-17L1	Leo L. Sanders		22									22	4*	26
14N/14W-17N1	Bob Piper	28	11				6					45		45
14N/14W-19H1	Robert J. Mathias												15	15
14N/14W-19R1	Irving R. Newman		15									15		15
14N/14W-20L1	Marion W. Prather												40	40
14N/14W-28E1	J. E. Baxman		16									16		16
14N/14W-28K1	Rawles Brothers		15	4				12				31		31
14N/14W-28R1	Rawles Brothers												25	25
14N/14W-29A1	E. A. Ford						17					17		17
14N/14W-29M1	E. A. Ford						34					34		34
14N/14W-34A1	R. M. Zane						23		4			27		27
14N/14W-34D1	M. L. Farrer						22		9			31		31
14N/15W-11E1	Oliver W. Winkler		83									83		83
14N/15W-11G1	Clyde E. Price								25			25		25
14N/15W-11J1	M. Cecil and Alice M. Gowan; James C. and Josephine Gowan		11						25			36		36
14N/15W-11J2	Byron Gowan		10	12							9	31		31
14N/15W-11K1	Archie Schoenahl								23			23		23
14N/15W-12D1	Ethel I. Williams	4							16			20		20
14N/15W-12N1	M. Cecil and Allice M. Gowan; James C. and Josephine Gowan								22			22		22
14N/15W-13D1	Arthur Gowan								10		4	14		14

* Denotes fallow land

TABLE II (Continued)

IRRIGATED LANDS IN
MENDOCINO COAST HYDROGRAPHIC UNIT, 1959
(In acres)

Location Number	Diversion Name Or Owner	Pasture		Alfalfa Hay and Pasture	Hay		Other Hay and Grain	Orchard		Corn	Truck Crops	Total Lands Irrigated	Idle Irrigated Lands	Total
		Native	Mixed		Barley	Oats		Pears	Apples					
						Novarro River Subunit (Continued)								
M D B & M														
14N/15W-13G1	Arthur Gowan										3	3		3
14N/15W-13G2	Arthur Gowan												10	10
Lands irrigated by ground water		—	15	—	—	—	29	—	45	—	3	92	—	92
Total Novarro River Subunit		32	273	16	0	0	131	12	266	0	19	749	94	843
						Point Arena Subunit								
M D B & M														
11N/15W-21P1	Melvin S. Wilson, Et ux		5									5		5
12N/13W-6N1	Mrs. J. W. Miallaird, Jr		3									3		3
12N/16W-4J1	William F. Walsh		18									18		18
12N/16W-14K1	Reed R. Farnsworth		8									8		8
13N/16W-6E1	John Acquistapace		25				5					30		30
13N/16W-7E1	James P. Biaggi		40									40		40
13N/16W-18C1	Herbert Richardson		10									10		10
13N/16W-19N1	Elmer L. Walker		21			14				9		44		44
13N/16W-31J1	Vernon Kendall		7									7		7
13N/16W-33M1	Oscar J. Olson		21									21		21
13N/17W-12K1	James P. Biaggi		18								2	20		20
13N/17W-12R1	Herbert Richardson		4									4		4
13N/17W-22J1 13N/17W-23M1 13N/17W-24E1	James P. Biaggi		109		23					9		141		141
13N/17W-35G1	Charles, Leslie and William Stornetta		42									42		42
13N/17W-35J1	Charles, Leslie and William Stornetta		171									171		171
13N/17W-36L1	George Dewey Stornetta		82			17					23	122		122
13N/17W-36M1	John Stornetta		43							2		45		45
13N/17W-36M2	Charles, Leslie and William Stornetta		25								30	55		55

TABLE II (Continued)

IRRIGATED LANDS IN
MENDOCINO COAST HYDROGRAPHIC UNIT, 1959

(In acres)

Location Number	Diversion Name Or Owner	Pasture		Alfalfa Hay and Pasture	Hay		Other Hay and Grain	Orchard		Corn	Truck Crops	Total Lands Irrigated	Idle Irrigated Lands	Total
		Native	Mixed —		Barley	Oats		Pears	Apples					
					Point Arena Subunit (Continued)									
M D B & M														
13N/17W-36M3	John Stornetta		44									44		44
13N/17W-36R2	Margaret Bishop, et al		20			10						30		30
14N/16W-19L1	Martin Christiansen		6									6		6
14N/16W-31E1	Beal Brothers		70							2		72		72
14N/17W-11R1	Galetti Brothers	69				24						93		93
14N/17W-13E1	Henry Galetti	29*										29		29
15N/17W-23N1	Charles and Peter Monella												17	17
Total Point Arena Subunit		98	792	0	23	65	5	0	0	22	55	1,060	27	1,087
					Rockport Subunit									
M D B & M														
19N/17W-3N1	Mrs. Phillip Smith		43									43		43
19N/17W-11D1 19N/17W-11E1 19N/17W-14H1	Arthur Gray	4	13		59							76		76
20N/17W-26L1	Kemppe, Biaggi, and Stoddard										5	5		5
20N/17W-34N1	Mrs. Phillip Smith		11									11		11
20N/17W-35C1 20N/17W-35L1 20N/17W-35P1	Kemppe, Biaggi, and Stoddard		7		13		10				4	34		34
20N/17W-20M1	Kate E. Thompson		4									4		4
21N/17W-29G1	Peter Masolini		7									7		7
Total Rockport Subunit		4	85	0	72	0	10	0	0	0	9	180	0	180
Land Use Summary:														
Lands irrigated by surface water: Mendocino County		176	1,140	16	95	65	128	12	221	22	95	1,970	200	2,170
Sonoma County		0	19	0	0	0	0	0	0	0	0	19	0	19

* Received partial irrigation

TABLE II (Continued)

IRRIGATED LANDS IN
MENDOCINO COAST HYDROGRAPHIC UNIT, 1959

(In acres)

Location Number	Diversion Name Or Owner	Pasture		Alfalfa Hay and Pasture	Hay		Other Hay and Grain	Orchard		Corn	Truck Crops	Total Lands Irrigated	Idle Irrigated Lands	Total
		Native	Mixed		Barley	Oats		Pears	Apples					
Land Use Summary: (Continued)														
Lands irrigated by ground water:														
Mendocino County		0	18	0	0	0	29	0	46	0	8	101	0	101
Sonoma County		0	0	0	0	0	0	0	0	0	0	0	0	0
Total Mendocino Coast Hydrographic Unit		176	1,177	16	95	65	157	12	267	22	103	2,090	200	2,290

similar commercial establishments in primarily recreational areas. Lands mapped in the camp and trailer sites category include those areas so used within primarily recreational areas outside the boundaries of parks. The entire area within the boundaries of parks is included without regard to specific uses within them. Nearly all of the mountainous and water surface areas are suitable for some use, such as hunting, fishing, hiking, picnicking, and other recreational activities of this nature. For the purpose of this land use survey, however, consideration is given only to those lands where some fairly intensive development occurs requiring water service.

The recreational lands are combined into one group in Table 10. As in the case of urban lands, the areas delineated are not necessary fully developed.

Native Vegetation

Lands which are essentially in a native state and not included in any of the above categories are mapped as native vegetation. They total approximately 1,002,190 acres, or 98 percent of the Mendocino Coast Hydrographic Unit. Included in these areas are water surfaces, scattered residences, and other associated land uses, covering a few acres or less, which are too small to be mapped separately. These lands are used to some extent for mining, commercial timber production, livestock range, and recreational activities, such as fishing, hunting, hiking, and picnicking.

Illustration 9
(top)

Clamming - MacKerricher
Beach State Park

Illustration 10
(bottom)

Ocean Fishing

CHAPTER IV - LAND CLASSIFICATION

Calculations of future water requirements will be based in a large part on a classification of lands with regard to their potential for irrigated agriculture and recreational development. The results of such a land classification conducted in the Mendocino Coast Hydrographic Unit are presented in this chapter.

Lands were not classified in this survey with respect to their potential for urban development. The use of lands for urban purposes is closely related to population at any given time, and it is planned to defer designation of these lands until estimates of population and related economic studies are made in connection with determinations of future water requirements.

The former Division of Water Resources made a reconnaissance classification of lands of the State which was reported in State Water Resources Board Bulletin No. 2, dated June 1955. The data on agricultural lands reported herein are in considerably greater detail than the information in Bulletin No. 2. This bulletin also includes additional data on classification of recreational lands.

Results of the land classification survey conducted in 1959 are shown on Plate 3, "Classification of Lands," Sheet 1 through 22. The total areas of each classification are listed by subunits in Table 12.

Methods and Procedures

The general methods and procedures used in field mapping and tabulation of information were essentially the same as those described for the land use survey in Chapter III. The standards used in the classification of lands are given in detail in Table 13. An example of land classification delineations on an aerial photograph is shown below: (See Table 13, page 75 for explanation of symbols used)

Illustration 11

Example of land classification delineated in aerial photograph

TABLE 12

CLASSIFICATION OF LANDS IN
MENDOCINO COAST HYDROGRAPHIC UNIT
(In acres)

Subunit and county	Irrigable agricultural lands											Total	Present urban lands, 1959	Recreational lands					Forest lands	Marsh lands
	Smooth lying					Gently sloping			Steeply sloping											
	V	Vw	VL	Vp	Vpr	H	Hp	Hpr	M	Mp	Mpr		U	RR	RC	RT	PP	Total	F	Vm
Fort Bragg Mendocino County	6,460	318	0	7,099	0	21,465	387	0	2,624	557	0	38,910	5,202	2,698	20	1,035	3,981	7,734	11,100	0
Gualala River Mendocino County	418	0	0	187	53	868	2,720	307	188	1,916	93	6,750	228	923	12	90	308	1,333	4,828	0
Sonoma County	205	91	42	1,373	0	543	3,383	52	68	1,627	33	7,417	140	661	0	21	5	687	4,797	0
Navarro River Mendocino County	2,175	24	49	744	0	4,703	1,260	7	505	2,746	105	12,318	408	1,817	49	29	649	2,544	11,833	0
Point Arena Mendocino County	4,982	176	0	39	0	1,658	7,810	0	619	2,711	0	17,995	650	6,981	29	185	1,863	9,058	10,234	0
Rockport Mendocino County	1,985	117	0	0	0	1,113	95	0	397	0	0	3,707	60	0	1	13	129	143	5,503	0
Mendocino County	16,020	625	49	8,069	53	29,807	12,272	314	4,333	7,930	198	79,670	6,548	12,419	111	1,352	6,930	20,812	43,498	0
Sonoma County	205	91	42	1,373	0	543	3,383	52	68	1,627	33	7,417	140	661	0	21	5	687	14,797	0
TOTALS	16,225	716	91	9,442	53	30,350	15,655	366	4,401	9,557	231	87,097	6,688	13,080	111	1,373	6,935	21,499	58,295	0

See Table 13 for explanation of symbols.

TABLE 13

LAND CLASSIFICATION STANDARDS

Land Class Symbol:	Characteristics

Irrigable Lands

V - These lands are level or slightly sloping and vary from smooth to hummocky or gently undulating relief. The maximum allowable slope is 6 percent for smooth reasonably large-sized bodies lying in the same plane. As the relief increases and becomes more complex, lesser slopes are allowed. The soils have medium to deep effective root zones, are permeable throughout, and free of salinity, alkalinity, rock, or other conditions limiting crop adaptability of the land. These lands are suitable for all climatically adapted crops.

H - These are lands with greater slope and/or relief than those of the V class. They vary from smooth to moderately rolling or undulating relief. The maximum allowable slope is 20 percent for smooth, reasonably large-sized bodies lying in the same plane. As the relief increases and becomes more complex, lesser slopes are allowed. The soils are permeable, with medium to deep effective root zones, and are suitable for the production of all climatically adapted crops. The only limitation is that imposed by topographic conditions.

M - These are lands with greater slope and/or relief than those of the H class. They vary from smooth to steeply rolling or undulating relief. The maximum allowable slope is 30 percent for smooth, reasonably large-sized bodies lying in the same plane. As the relief increases and becomes more complex, lesser slopes are limiting. The soils are permeable, with medium to deep effective root zones, and are suitable for the production of all climatically adapted crops. The only limitation is that imposed by topographic conditions.

Any variation from the foregoing, as defined, is indicated by use of one or more of the following symbols:

w - Indicates the presence of a high-water table, which in effect limits the present crop adaptability of these lands to pasture crops. Drainage and a change in irrigation practice would be required to affect the crop adaptability.

Land Class Symbol:	Characteristics
s -	Indicates the presence of an excess of soluble salts or exchangeable sodium in slight amounts, which limits the present adaptability of these lands to crops tolerant to such conditions. The presence of salts within the soil generally indicates poor drainage and a medium to high-water table. Reclamation of these lands will involve drainage and the application of small amounts of amendments and some additional water over and above crop requirements in order to leach out the harmful salts.
ss -	Indicates the presence of an excess of soluble salts or exchangeable sodium in sufficient quantity to require the application of moderate amounts of amendments and some additional water over and above crop requirements in order to effect reclamation.
h -	Indicates very heavy textures, which make these lands best suited for production of shallow-rooted crops.
l -	Indicates fairly coarse textures and low moisture-holding capacities, which in general make these lands unsuited for the production of shallow rooted crops because of the frequency of irrigations required to supply the water needs of such crops.
p -	Indicates shallow depth of the effective root zone, which limits use of these lands to shallow-rooted crops.
r -	Indicates the presence of rock on the surface or within the plow zone in sufficient quantity to prevent use of the land for cultivated crops.
	Urban Lands
UD -	The total area of cities, towns, and small communities presently used for residential, commercial, recreational and industrial purposes.
	Recreational Lands
RR -	Existing and potential permanent and summer home tracts within a primarily recreational area. The estimated

Land Class Symbol	Characteristics
	number of houses, under conditions of full development, is indicated by a number in the symbol, i.e., RR-3 is suitable for three houses per acre.
RC -	Existing and potential commercial areas which occur within a primarily recreational area and which include motels, resorts, hotels, stores, etc.
RT -	Existing and potential camp and trailer sites within a primarily recreational area.
P -	Existing and potential county, state, federal, and private parks, racetracks, and fairgrounds.
	Miscellaneous Lands
N -	Includes all lands which fail to meet the requirements of the above classes.

Major Categories of Land Classes

The lands mapped can be grouped into four major categories: (1) irrigable lands, (2) urban lands, (3) recreational lands, and (4) miscellaneous lands: irrigable lands deemed best suited to remain under forest or range management, marsh lands, and all those lands which fail to meet the requirements of the first three land class categories.

Irrigable Lands

Irrigable lands are grouped in appropriate classifications according to their suitability for development under irrigated agriculture and their crop adaptability. Presently irrigated lands are included within these classifications, but urban lands and recreational lands are not classed as to irrigability. The time element with respect to when the lands might be developed did not enter the determination, except that suitability for irrigated agriculture was necessarily considered in light of present agricultural technology.

There are many factors which influence the suitability of land for irrigation development. Since soil characteristics and the physiography of the landscape are the most stable of these factors, they were the only ones considered in the survey in classifying lands to their irrigability. The characteristics of the soil were established by examination of road cuts, ditch banks, and the material from test holes, together with observations of the type and density of native vegetation and crops. Representative slopes throughout the area were measured with a clinometer.

other aspects such as those economic factors related to the production and marketing of climatically adapted crops, the location of lands with respect to a water supply, and climatic conditions were not considered in the basic classification. These latter factors are very important in estimating the nature of future cropping patterns and practices and will be given due consideration when estimates are made of future water requirements.

Urban Lands

It is recognized that future urban expansion will encroach upon some of the irrigable lands. The location and extent of this type of development is a function of many variables. Because this land classification survey is an inventory of relatively unchanging physical conditions, no attempt was made to locate the areas of urban encroachment. Therefore, only those lands devoted to urban uses in 1959 are designated as "urban" lands.

Recreational Lands

Present trends indicate an expanding rate of use and demand for recreational facilities throughout the State. In view of these trends and the ever-increasing population, it is recognized that there will be a demand for substantial land areas for recreational purposes. This is particularly true of the mountainous and coastal regions where this type of development is expanding rather rapidly at the present time.

Generally speaking, all mountainous and coastal lands are suitable for some recreational use such as hunting, fishing, and similar outdoor activities. However, for purposes of this survey,

lands classified for recreational use were limited to those which are now, or may in the future be used intensively for permanent and summer home tracts, camp and trailer sites, and parks outside of urban areas. These are lands requiring intensive water service.

Primary considerations for classification of home tracts and camp and trailer sites were such physical factors as soil depth, slope, and rockiness; such aesthetic values as view, nearness to lakes, streams or seashore, or density and type of forest canopy suitable for the respective uses; and the plans of the federal and state forest officials. An important factor in location of camp and trailer sites is the availability of a water supply, but isolation from existing roads did not influence site selection.

The total areas of existing federal and state parks, rather than the specific areas of potential intensive development therein, are included with the recreational lands on Plate 3. For other parks, only the areas presently developed to intensive recreational use are delineated. No attempt was made to predict where additional park developments will take place.

Miscellaneous Lands

Two types of lands are included as miscellaneous lands in Table 13. They are designated separately on Plate 3. These are: (1) irrigable forest lands and (2) swamp and marsh lands.

Irrigable forest lands are those forested lands, range lands or land subject to some type of forest management having physical conditions making them susceptible to irrigation development

Illustration 12
(top)

Dairy Farm

Illustration 13
(bottom)

Community of Mendocino

because of climatic conditions and physiographic position are better suited and expected to remain under their present uses.

Swamp and marsh lands are those lands which generally have water standing in them and usually support a heavy growth of tules or other phreatophytes.

Approximately 840,114 acres or 82 percent of the area of the hydrographic unit failed to meet the requirements for the irrigable, urban and recreational classification or to be included within the two groups of miscellaneous lands described above.

CHAPTER V - SUMMARY

The Mendocino Coast Hydrographic Unit comprises the 1,599-square mile (1,024,000-acre) watershed on the western slope of the Pacific Coast Range in the western half of Mendocino County and a small part of northwestern Sonoma County. Most of the terrain in the unit is rugged and mountainous. Valley and foothill lands constitute only about 10 percent of the total area. Lumber is the largest single commercial enterprise in the unit, the initial development of which took place in the late 1850's. Agriculture and dairying are also important local activities. Major irrigated uses are for pastures and orchards. The largest community in the unit is Fort Bragg with a population of about 7,000.

Water Use

There were 108 diversions of water from surface streams located in the unit in 1959. No significant hydroelectric powerplants are located in the unit. Most (75) of the diversions were used for irrigation purposes.

The majority of these diversions are based on riparian rights and on appropriative rights established prior to enactment of the Water Commission Act in 1914. Generally, there are no official records of the riparian water rights. Many of the early appropriative rights are not on record, since such rights could be established prior to 1914 by actual diversion and use of water.

Since the passage of the Water Commission Act, a total of 76 currently valid applications have been made for diversions in the unit. Permits or licenses have been granted for 72 of these applications for diversion and storage and 4 are pending.

Of the total 2,090 acres of land irrigated in the unit in 1959, ground water was used to irrigate 101 acres and surface water was used to irrigate 1,989 acres.

The total consumptive use of applied water in the hydrographic unit for all purposes for the period January 1959 through December 1959, is estimated to have been 1,755 acre-feet. Nearly all of the water diverted in the unit for industry, irrigation, and other purposes during the same period was measured during this investigation and amounted to some 4,696 acre-feet.

Land Use

The present use of land in the Mendocino Coast Hydrographic unit, as indicated by the 1959 survey, is shown in Figure 1 as follows:

Use	Area in acres
Agriculture	
Lands irrigated in 1959	2,094
Lands usually irrigated, but idle or fallow in 1959	200
Naturally irrigated marsh and meadowlands	750
Dry-farmed lands	3,493
TOTAL	6,537
Urban	6,673
Recreation	
Summer home areas	943
Parks	6,950
Trailer and camp sites	424
TOTAL	8,317

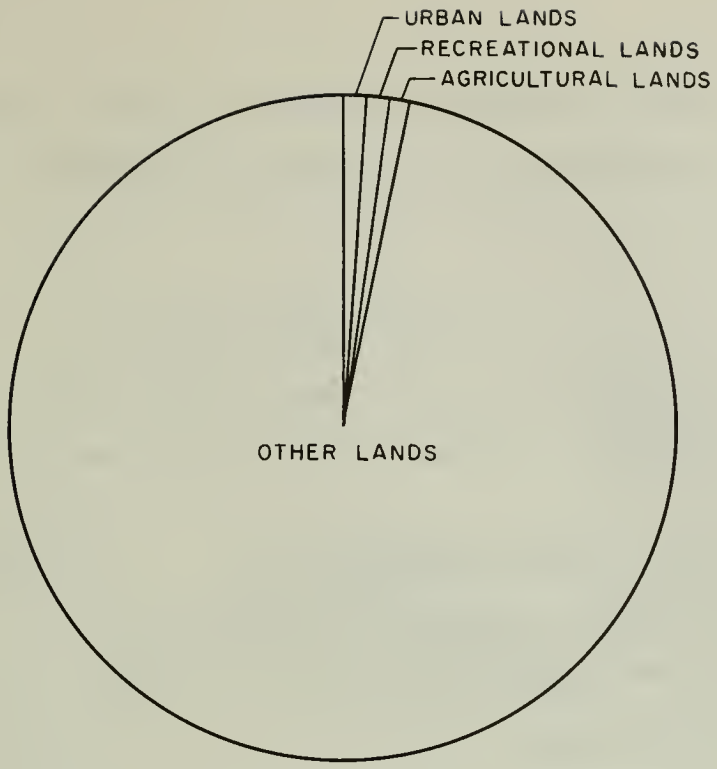

Figure 1

1959 LAND USE

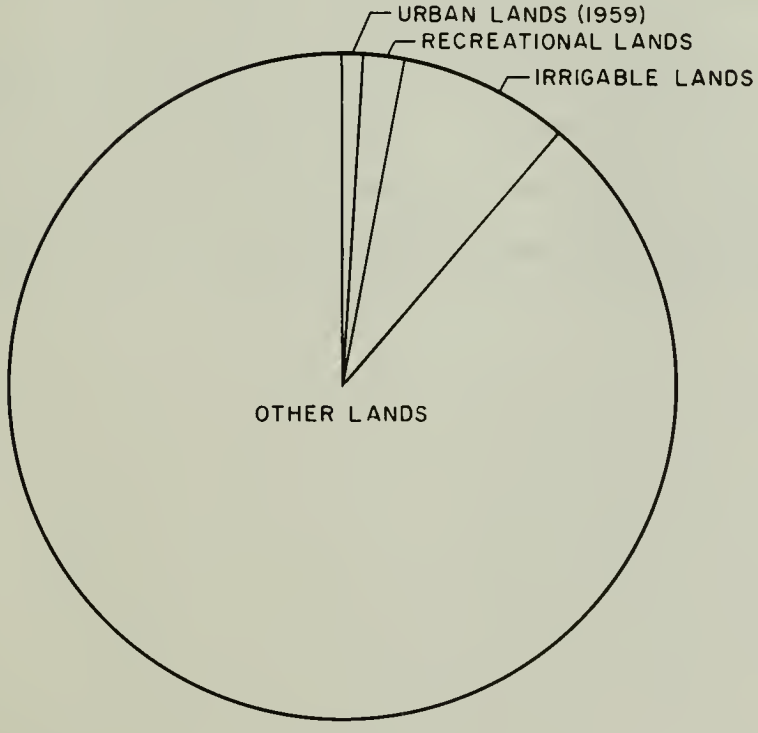

Figure 2

CLASSIFICATION OF LANDS

The 21,367 acres surveyed as being used in 1959 represent approximately 2.1 percent of the total area of the unit.

Land Classification

The results of the land classification survey conducted in 1959, as shown in Figure 2, are summarized below:

Classification	Area, in acres
Irrigable agricultural lands	87,097
Recreational lands	21,499
Urban lands	6,688
TOTAL	115,284

The above figures represent 8.5, 2.1, and 0.6 percent, respectively, of the total area in the unit.

About 44.7 percent of the irrigable lands are located in the Fort Bragg Subunit. Approximately 42.1 percent of the recreational lands are located in the Point Arena Subunit. The Fort Bragg Subunit contains 36 percent of the recreational lands.

APPENDIX A

STATEWIDE WATER RESOURCES AND WATER REQUIREMENTS PROGRAM

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STATEWIDE WATER RESOURCES AND WATER REQUIREMENTS PROGRAM

California's major water problem today is that of providing supplemental water supplies to many areas of the State. The problem involves (1) the regulation of seasonal runoff in the areas of origin from the months of abundance to the months of deficiency, so as to satisfy the water requirements of these areas, and (2) the transmission of surplus flows to areas of deficiency. This will be accomplished by such works as the Central Valley Project and the Feather River and Delta Diversion Projects of the State Water Resources Development System.

Several steps have been taken to provide for the protection of water supplies in areas in which the water originates. The protection covers both present and future needs. In order to determine future needs, hydrologic, land, and economic data must be gathered and analyzed.

Consumptive water requirements of the State on a basin-wide basis were estimated in State Water Resources Board Bulletin No. 2, "Water Utilization and Requirements of California," June 1955. However, to provide for local needs while considering specific export projects, more detailed information on present and ultimate water requirements of the areas in which projects are to be built is required. Such information is also needed for effective and equitable allocation of available funds for assistance to local projects.

Recognizing that additional information is needed if the water needs of areas of origin are to be adequately protected in large-scale water development projects, the 1956 legislature authorized an Inventory of Water Resources and Requirements of the respective watersheds in the State. The authorization is contained in Chapter 61, Statutes of 1956 as amended by Chapter 2025, Statutes of 1959. This legislation is codified in Section 232 of the Water Code as follows:

> "232. The Legislature finds and declares that in providing for the full development and utilization of the water resources of this State it is necessary to obtain for consideration by the Legislature and the people, information as to the water which can be made available for exportation from the watersheds in which it originates without depriving those watersheds of water necessary for beneficial uses therein. To this end, the department is authorized and directed to conduct investigations and hearings and to prepare findings therefrom and to report thereon to the Legislature at the earliest possible date with respect to the following matters:
>
> (a) The boundaries of the respective watersheds of the State and the quantities of water originating therein;
>
> (b) The quantities of water reasonably required for ultimate beneficial use in the respective watersheds;
>
> (c) The quantities of water, if any, available for export from the respective watersheds;
>
> (d) The areas which can be served by the water available for export from each watershed; and
>
> (e) The present use of water within each watershed together with the apparent claim of water right attaching thereto, excluding individual uses of water involving diversions of small quantities which, in the judgment of the Director of Water Resources, are insufficient in the aggregate to materially affect the quantitative determinations included in the report.

"Before adopting any findings which are reported to the Legislature, the department shall hold public hearings after reasonable notice, at which all interested persons may be heard."

For purposes of this investigation, the State has been divided into twelve major hydrographic areas. These areas, in turn, have been subdivided into hydrographic units generally comprising watersheds of individual rivers. These watersheds will be field surveyed in some detail and where previous detailed studies have been made the information will be brought up-to-date. Surveys of land and water use will be made and published separately for each of these hydrographic units. Bulletin 94-10, "Land and Water Use in Mendocino Coast Hydrographic Unit," is the tenth of a series of bulletins reporting the results of these surveys.

At a future date, estimates, largely based on the land and water use surveys, will be made of quantities of water reasonably required for future beneficial uses in each watershed. The quantity of water potentially available for export from each watershed will be determined after allowances are made for the satisfaction of the local requirements and prior rights to divert water to other areas. For these watersheds in which no exportable water is available the water supply deficiency will be determined. These estimates will be published as they become available, in such form as to make possible a county-by-county determination.

The basis of calculations of future water requirements will be based in part on predicted future land uses, derived from land classification surveys, economic studies, population forecasts, industrial and agricultural development, and recreational

needs. Agricultural water requirements will be based on unit water use by the various extents of predicted crop types; urban and recreational requirements on per capita water use values; fish and wildlife requirements on minimum stream flow needed or on water demands for wildlife areas; and industrial water requirements on measured water deliveries to various types and sizes of industries now existing. In forecasting future industrial development, water quality problems will be given full consideration.

Water resources will be determined from records of existing and former stream gaging stations and new stations established for this and other investigations of the department. The new stations will be generally located on streams which originate in the smaller watersheds for which runoff data are necessary, but for which no data have been available.

APPENDIX B

REPORTS ON RELATED INVESTIGATIONS AND OTHER REFERENCES

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REPORTS ON RELATED INVESTIGATIONS AND OTHER REFERENCES

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Thompson, R. A., "The Russian Settlement in California," Santa Rosa, California, (1896)

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United States Department of Interior, Geological Survey, Water Supply Papers dated 1950-1960, inclusive

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APPENDIX C

LEGAL CONSIDERATIONS

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LEGAL CONSIDERATIONS

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APPENDIX C

LEGAL CONSIDERATIONS

There are set forth in the following paragraphs brief general statements with respect to the California law of water rights and a review of litigation involving water rights in the Mendocino Coast Hydrographic Unit.

California Water Rights

All rights to water in California are usufructuary, that is, they consist only in rights to the beneficial use of water. The water itself is not susceptible of private ownership so long as it remains in its natural state prior to its being reduced to actual possession. A right to the use of water of a stream includes the right to the continued flow thereof to the owner's point of diversion or to riparian lands, without unlawful interference by others junior in right.

Riparian and appropriative water rights, and correlative rights to the use of ground water, are recognized in California. Of these, riparian and correlative rights are paramount until lost or impaired by grant, condemnation or prescription.

All water rights, both surface and underground, are subject to the doctrine of reasonable use expressed in Section 3 of Article 14 of the California Constitution which limits the right to the quantity of water reasonably required for beneficial use and which prohibits waste, unreasonable use, or unreasonable methods of use or diversion.

Riparian Rights

Riparian rights are part and parcel of riparian lands, i.e., land abutting upon a natural watercourse within the watershed. They do not authorize use of water on nonriparian land nor do they permit seasonal storage of water. They are not created by use, nor are they lost by nonuse. They extend to future reasonable requirements for beneficial use upon riparian land, although they do not prevent temporary appropriation by others of water not presently required upon such lands. Each riparian right is correlative with each and every other such right upon the watercourse in the particular watersheds and in the event of insufficient water for all, the available supply must be prorated, except that an upper riparian owner may take the whole supply if necessary for domestic use.

The riparian right attaching to a particular parcel of land is subject to appropriative rights established by diversions upon vacant public domain before the first valid steps were taken to acquire this parcel of land from the United States, whether diversion was made on the parcel or at points upstream or downstream.

The riparian rights may be severed and lost in whole or part by grant or condemnation and cannot thereafter be restored. A parcel of land loses its riparian right when separated from contact with the stream by conveyance unless the right is reserved by the grantor. It cannot be transferred for use upon another parcel of land.

Appropriative Rights

The miners of the early gold seeking period established the doctrine of appropriative water rights in California. Their

procedure was based simply on beneficial use and required no recordation in establishing the right. The first procedure requiring recordation in perfecting an appropriative right was the Civil Code enactment of 1872. (Civil Code Sections 1410-1422.) This procedure, modified several times, was in use until the Water Commission Act (California Statutes of 1913, Chapter 586) became effective on December 19, 1914.

The oldest of the procedures to perfect an appropriative right required simply that a diversion be made and the water be put to beneficial use. Beneficial use established the date of priority of the right.

The 1872 Civil Code procedure required that before a diversion of surface water could be made, a notice of intention describing the source of the water, the location of the proposed diversion, the amount to be diverted, the use and the place of use be posted at or near the place of proposed diversion. This notice was to be signed, witnessed, and a copy filed with the Recorder in the county in which the proposed diversion was located. The appropriative right thus initiated became perfected when the water was put to beneficial use, but the right related back to the time the notice was posted. While the 1872 Civil Code procedure was the first to require recordation, it was not an exclusive procedure in that an appropriative right could be perfected to the extent of beneficial use simply by diverting the water and making beneficial use of it.

The Water Commission Act, on the other hand, established an exclusive procedure for the appropriation of water. This enactment requires that a permit be obtained from the State of California before water can be appropriated. The procedure outlined by the Water Commission Act, as now codified in the Water Code, requires that an application to appropriate water be submitted to the State Water Rights Board, Upon the approval of the application, a permit is issued so that the applicant can construct the features necessary to put the water to beneficial use. When the project has been completed, an inspection of it is made and a license is issued, to the extent of beneficial use, provided the terms and conditions of the permit have been fulfilled.

Once an appropriative water right has been initiated, it must be diligently prosecuted to completion in order to maintain its date of priority. While water may not be appropriated for a distant future use, a reasonable amount of time is allowed to put the full amount of water to use within the original intent of the application to appropriate water.

A right to appropriate water is lost by abandonment or continuous nonuse. In the case of an appropriation initiated prior to 1914, the period of continuous nonuse is five years, while under the Water Commission Act, or the Water Code, the period of continuous nonuse is only three years. (Water Code Section 1241.)

Ground Water Rights

The permit and license procedure established by the Water Commission Act applies only to streams and other bodies of

surface water and to subterranean streams flowing through known and definite channels. Percolating ground water is therefore excluded and rights to its use are governed by judicial decisions rather than by statute. Ground waters are presumed to be percolating in the absence of evidence to the contrary.

The owner of land overlying a ground water basin or stratum has, like the riparian owner, a paramount right to the reasonable beneficial use of the natural supply upon his overlying land, which right he holds in common with all other landowners similarly situated. Only surplus water in excess of reasonable requirements for beneficial use upon overlying lands is subject to appropriation for beneficial use upon other lands. Prescriptive rights to ground water may be acquired under the same circumstances as prescriptive rights to water of surface streams.

Where ground water and surface water are interconnected, one acting as a tributary to the other, both are treated as part of a common supply and users of water from either source are entitled to protection from substantial injury as a result of use by others of water from the other source. Thus, an owner of land riparian to a stream may have his right to the use of water protected against impairment by an appropriator of percolating ground water tributary to the stream and required for the maintenance and support of its flow. Likewise, where water from a stream percolates to a ground water basin or stratum, the owner of land overlying such ground water may be protected from an appropriation of water of the stream, if such use causes a substantial impairment of the ground water supply.

State Assistance

Under certain provisions of the Water Code, actions involving determinations of rights to the use of water brought in either state or federal courts may, at the court's discretion, be referred to the State Water Rights Board. Under the provisions of Water Code Section 2000, the court may appoint the board to referee "any or all issues involved in the suit," or under Section 2001, it may limit the reference to "investigation of and report upon any or all physical facts involved." This reference procedure may be followed in suits involving either or both surface and ground waters.

A simplified procedure is available for preliminary determination of rights to the use of water of streams, lakes, and other bodies of water, but the method excludes the determination of rights to take water from an underground supply other than from a subterranean stream flowing through known and definite channels. Water Code Sections 2500 to 2900, inclusive, authorize the initiation of such a proceeding before the board. The board then makes an engineering investigation and report, holds hearings, and prepares an order of determination which is submitted to the court. After hearings, the court makes a final determination of the water rights.

Court actions which involve a determination of relative rights to the use of water of stream or stream system or ground water basin afford a basis for distribution of water after decree under watermaster service. Water users may secure the services of the Department of Water Resources under Water Code Sections 4000 to 4407, inclusive, in making distribution of the water to them according to their respective rights, as determined by the court.

Adjudication of Water Rights

There has been no major adjudication of water rights in the Mendocino Coast Hydrographic Unit. Consequently, neither the State Water Rights Board nor any of its predecessor agencies has been involved in a court reference, and state watermaster service has not been established.

Applications to appropriate water within the Mendocino Coast Hydrographic Unit, filed with the State since 1914 and active on July 11, 1962, are summarized in Table C-1. Those diversions, for which an application to appropriate water is filed with the State and which were found in this survey to be of significant size, have been assigned diversion numbers which are included in the table. The status of each application as to the granting of a permit or license is also shown in the table.

TABLE C-1

APPLICATIONS TO APPROPRIATE WATER IN MENDOCINO COAST HYDROGRAPHIC UNIT

(Filed with State Water Rights Board as of April 5, 1962)

Application number	Date filed	Present owner	D.W.R. diversion number	Source	Location of point of diversion						Amount	Period of diversion	Purpose	Status
					1/4	1/4	Sec.	Tp.	R.	B. & M.				
889	1/14/18	August N. and Florence C. Westerberg	--	Noyo Vista Creek	SE	NE	18	18N	15W	MD	0.10 cfs	Mar 1-Dec 1	Domestic and irrigation, 7 acres	L-254
7095	10/17/31	John and Eric Andereon	--	South Fork Digger Creek	LOT	4	19	18N	17W	MD	2,300 gpd	Jan 1-Dec 31	Domestic	L-1987
7176	1/18/32	Estate of Harold N. Wonacott	--	South Fork Digger Creek	NE SW	SE SW	24 19	18N 18N	18W 17W	MD MD	0.77 cfs 0.49 cfs	Jan 1-Dec 31 Jan 1-Dec 31	Industrial	L-1481
9012	6/19/37	William Olander	18N/17W-19P1	Digger Creek	SW	SW	19	18N	17W	MD	10,000 gpd	Jan 1-Dec 31	Domestic and recreational	L-2189
9027	6/30/37	Lawrence W. and Nelen K. Barnes	--	Gulch tributary to Pacific Ocean	SW	SW	16	16N	17W	MD	2,500 gpd	Jan 1-Dec 31	Domestic and irrigation, 2 acres	L-2701
9372	8/6/38	John J. and Ida L. Bower	11N/15W-27D1 11N/15W-28E1	Robinson Gulch Big Gulch	NW NE	NW SE	27 21	11N 11N	15W 15W	MD MD	1.0 cfs	Apr 1-Oct 31	Domestic and irrigation	P-5431
9454	11/16/38	Ida L. and John J. Bower	11N/15W-27D1 11N/15W-28E1	Robinson Gulch Big Gulch	NW NE	NW SE	27 21	11N 11N	15W 15W	MD MD	1.0 cfs	Apr 1-Oct 31	Domestic and irrigation, 7.5 acres	P-5432
9618	6/15/39	Cecil Cowan	14N/15W-11J1 14N/15W-11J2	Navarro River	SE	SE	11	14N	15W	MD	0.36 cfs	May 1-Oct 31	Irrigation, 25 acres	L-2826
11416	6/5/46	Soper-Wheeler Company	9N/12W-5N1	Old House Creek	SW SE	SW NW	5 5	9N 9N	12W 12W	MD MD	0.42 cfs 20 af	Apr 1-Nov 1 Oct 1-Apr 1	Domestic, stock watering and irrigation, 33.75 acres	L-5424
12194	12/13/47	Della E. Gleason	--	Nutsell Creek	NW	NE	14	13N	14W	MD	2,700 gpd	Mar 1-Dec 15	Domestic	L-3901
12489	4/28/48	El Rancho Navarro	--	Rancheria Creek	NW	SE	19	14N	14W	MD	0.13 cfs	May 1-Nov 1	Irrigation, 18 acres	L-5146
13176	6/27/49	Roy N. Zane	14N/14W-34A1	Con Creek	NE	NE	34	14N	14W	MD	0.16 cfs	May 1-Oct 15	Irrigation, 20 acres	L-3943
14565	11/5/51	Union Lumber Company	18N/17W-18N1	Mars Creek	SE	NE	12	18N	18W	MD	1.11 cfs 6 af	Jan 1-Dec 31 Nov 1-Apr 1	Industrial	L-3925
14566	11/5/51	Union Lumber Company	18N/17W-18J1	Noyo Waterfall Gulch	SW	NE	18	18N	17W	MD	0.56 cfs 6 af	Jan 1-Dec 31 Nov 1-Apr 1	Industrial	L-3926
14792	5/5/52	Donald S. Babcock	18N/17W-18P1	Mars Creek	SW	SW	18	18N	17W	MD	0.13 cfs	May 15-Oct 1	Irrigation, 20 acres	L-5123
14968	8/13/52	U. S. Air Force Hamilton Air Force Base	--	Spring tributary to a creek tributary to Garcia River	SE	SE	17	12N	15W	MD	0.025 cfs	Jan 1-Dec 31	Domestic	L-5258
15082	11/14/52	Union Lumber Company	18N/17W-6E1	Pudding Creek	SW	NW	6	18N	17W	MD	1 cfs 200 af	Jan 1-Dec 31 Oct 1-June 30	Industrial	L-6449
15083	11/14/52	Union Lumber Company	18N/17W-9C1	Noyo River	NE	NW	9	18N	17W	MD	3 cfs 200 af	Jan 1-Dec 31 Apr 1-Dec 31	Industrial	P-9550
15098	11/26/52	California Department of Natural Resources, Division of Forestry	--	Spring tributary to Robinson Creek	SW	NW	18	13N	13W	MD	4,800 gpd	Jan 1-Dec 31	Domestic	L-5911
15187	2/4/53	Harry R. Groves	--	Gibson Creek	SE	NE	24	15N	13W	MD	400 gpd	Jan 1-Dec 31	Domestic	L-4920
15238	3/16/53	Gordon and Mary E. McGuire	--	Noyo River	NE	NW	14	18N	15W	MD	0.25 cfs	May 1-Oct 1	Irrigation, 20 acres	L-5143
15343	5/15/53	Wayne Henderson	--	Mill Creek	NW	SW	11	13N	14W	MD	0.25 cfs	May 1-Nov 1	Irrigation, 20 acres	P-9510
15425	7/23/53	Richard L. and J. W. French	--	Anderson Creek	SW	NW	28	14N	14W	MD	0.63 cfs	May 1-Nov 1	Irrigation, 30 acres	P-9727
15520	9/2/53	Robert Mathias	14N/14W-19H1	Indian Creek	SE	NE	19	14N	14W	MD	0.15 cfs	May 15-Oct 31	Irrigation, 12 acres	L-5224
15691	1/19/54	John Prosolino	--	Greenwood (Donahue) Creek	Lot	13	16	14N	15W	MD	0.05 cfs	May 1-Nov 1	Irrigation, 20 acres	L-5952
15696	1/21/54	N. J. June	--	Anderson Creek	SE NE	SE SW	34 34	14N 14N	14W 14W	MD MD	0.66 cfs	May 1-Oct 1	Irrigation, 61 acres	P-9760
15733	2/18/54	Maurice L. Farrer	14N/14W-34H1	Anderson Creek	NW	NW	34	14N	14W	MD	0.66 cfs	May 1-Oct 31	Irrigation, 45 acres	P-9798
15799	3/26/54	William F. and Nelen B. Clow	14N/14W-29H1 14N/14W-29A1	Anderson Creek	SE NE	NE NE	29 29	14N 14N	14W 14W	MD MD	0.43 cfs	May 15-Oct 1	Irrigation, 50 acres	L-5135

For explanation of symbols, see last page of table

TABLE C-1 (Continued)

APPLICATIONS TO APPROPRIATE WATER IN MENDOCINO COAST HYDROGRAPHIC UNIT

(Filed with State Water Rights Board as of April 5, 1962)

Application number	Date filed	Present owner	D.W.R. diversion number	Source	Location of point of diversion						Amount	Period of diversion	Purpose	* Status
					1/4	1/4	Sec.	Tp.	R.	B. & M.				
15986	8/9/54	Rawles Brothers	11N/14W-28R1 11N/14W-28K1	Anderson Creek	SE NW	SE SE	28 28	11N 11N	14W 14W	MD MD	0.75 cfs	May 1-Oct 1	Irrigation, 63 acres	P-10086
16076	10/1/54	Galen C. and Dorothy C. Darr	--	Getchell Gulch	NW	SW	17	11N	15W	MD	14,000 gpd	Jan 1-Dec 31	Domestic and irrigation, 4.5 acres	L-5079
16082	10/6/54	James V. and Lella Belle Doherty	--	School House Gulch	NE	SW	8	16N	17W	MD	1,500 gpd	Jan 1-Dec 31	Domestic	L-5033
16108	10/22/54	Henrietta Smith and Henry R. Smith	20N/17W-34N1	Ten Mile River	SW NW	SW NW	35 3	20N 19N	17W 17W	MD MD	0.48 cfs	Apr 1-Oct 31	Stockwatering and irrigation, 38 acres	P-10098
16109	10/22/54	Henrietta Smith and Henry R. Smith	19N/17W-3N1	Ten Mile River	SE SW	NE NW	10 3	19N 19N	17W 17W	MD MD	1.5 cfs	Apr 1-Oct 31	Stockwatering and irrigation, 121 acres	P-10099
16247	2/25/55	Herbert T. and Catherine Richardson	13N/16W-18C1 13N/17W-12R1	Alder Creek	SE NW	NW NW	18 --	13N 13N	16W 16W	MD MD	0.31 cfs	May 1-Oct 30	irrigation, 38 acres	L-5938
16263	3/8/55	Mac-Young Lumber Company, Inc.	11N/14W-17N2	Indian Creek	SW	SW	17	11N	14W	MD	0.055 cfs 7 af	Jan 1-Dec 31 May 1-Dec 31	Industrial	L-5035
16297	4/4/55	James E. Barbour	--	Drain tributary to Pacific Ocean	SE	NE	24	18N	18W	MD	4,800 gpd 15,000 gpd	Mar 1-Oct 31 Jan 1-Dec 31	Irrigation, 1 acre Recreational	L-5608
16331	4/22/55	U. S. Air Force Hamilton Air Force Base	--	Spring tributary to stream tributary to Garcia River	NE	SE	17	12N	15W	MD	0.025 cfs	Jan 1-Dec 31	Domestic	L-5259
16374	5/16/55	Lee N. and Ann M. Huntley	--	North Fork of Gualala River	SW NE SW NW SE	SW NW NE SE SE	13 23 23 23 23	11N 11N 11N 11N 11N	15W 15W 15W 15W 15W	MD MD MD MD MD	2 cfs	Apr 1-Nov 30	Domestic, recreational and irrigation, 194 acres	P-10577
16419	6/15/55	William F. and Mary Walsh	12N/16W-4J1	Garcia River	NW	SE	4	12N	16W	MD	0.35 cfs	May 1-Oct 15	Irrigation, 30 acres	P-10262
16592	9/8/55	James P. and Flora Biaggi	13N/17W-12K1	Alder Creek	NW	SE	12	13N	17W	MD	0.22 cfs	May 1-Nov 1	Stockwatering and irrigation, 30 acres	L-6257
16593	9/8/55	James P. and Flora Biaggi	13N/17W-22J1 13N/17W-23M1	Brush Creek	NE NW	SE SE	23 23	13N 13N	17W 17W	MD MD	2.06 cfs	May 1-Nov 1	Stockwatering and irrigation, 165 acres	P-10413
16624	9/27/55	Ruth Noel	--	Spring tributary to Marsh Gulch	SW	NE	24	15N	17W	MD	3,700 gpd	Jan 1-Dec 31	Domestic and fire protection	L-5966
16627	9/27/55	Mary, Leslie, Charlie and William Stornetta	13N/17W-35G1 13N/17W-35J1 13N/17W-36M2	Garcia River	NE NE	SW SW	36 35	13N 13N	17W 17W	MD MD	1.4 cfs	Apr 1-Oct 31	Stockwatering and irrigation, 322 acres	L-6468
16628	9/27/55	Dewey, Ross, Henry and Gloria Stornetta	13N/17W-36L1	Garcia River	SE NE	SE SW	36 36	13N 13N	17W 17W	MD MD	0.5 cfs	Apr 1-Oct 31	Stockwatering and irrigation, 143 acres	L-6469
16635	9/28/55	John Acquistapace	13N/16W-6E1	Irish Creek	SE	NW	6	13N	16W	MD	1 cfs	Apr 1-Oct 31	Stockwatering and irrigation, 80 acres	P-10467
16636	9/28/55	Beal Brothers (James N. and Edward C.)	11N/16W-31E1	Mallo Pass Creek	SE	NW	31	11N	16W	MD	0.94 cfs	Apr 1-Oct 31	Stockwatering and irrigation, 75 acres	P-10468
16663	10/11/55	Vernon and Clara Kendall	13N/16W-31J1	Garcia River	NE NW	SE SE	31 31	13N 13N	16W 16W	MD MD	0.72 cfs	Apr 1-Oct 31	Stockwatering and irrigation, 47 acres	P-10469
16700	10/27/55	Walter O., Jane T., John J. and Louise N. Stornetta	13N/17W-36M1 13N/17W-36M3	Garcia Unit	NE NE	SW SE	36 35	13N 13N	17W 17W	MD MD	0.7 cfs	Apr 1-Oct 31	Stockwatering and irrigation, 107 acres	L-6470
16771	12/6/55	Theodore, Warren and Charles Galetti, dba Galetti Brothers	11N/17W-11R1	Stream tributary to Pacific Ocean	SE	SW	12	11N	17W	MD	20 af	Nov 1-Mar 31	Stockwatering and irrigation, 30 acres	P-12119
16815	1/3/56	Elmer L. and Ella F. Walker	13N/16W-19N1	Brush Creek	SE	SW	19	13N	16W	MD	0.8 cfs	Apr 1-Oct 31	Stockwatering and irrigation, 64 acres	P-10585
17111	6/6/56	Ralph and Kathryn Washburn	—	Ferguson Gulch	SE	NW	18	11N	15W	MD	0.025 cfs	Jan 1-Dec 31	Domestic, recreational and irrigation, 3.5 acres	P-10801
17161	7/2/56	James P. and Flora Biaggi	13N/17W-24E1	Lagoon Lake	NE	NE	26	13N	17W	MD	0.63 cfs	Apr 1-Oct 31	Stockwatering and irrigation, 190 acres	P-10864
17345	11/1/56	City of Fort Bragg	—	Noyo River	SE	NE	9	18N	17W	MD	3 cfs	Jan 1-Dec 31	Municipal	P-11383

For explanation of symbols, see last page of table.

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TABLE C-I (Continued)

APPLICATIONS TO APPROPRIATE WATER IN MENDOCINO COAST HYDROGRAPHIC UNIT

(Filed with State Water Rights Board as of April 5, 1962)

Application number	Date filed	Present owner	D.W.R. diversion number	Source	Location of point of diversion						Amount	Period of diversion	Purpose	Status*
					1/4	1/4	Sec.	Tp.	R.	B. & M.				
17455	2/5/57	Ovid and Janet Holmes	--	Mill Creek	NW	NW	34	15N	15W	MD	0.34 cfs	May 15-Nov 31	Stockwatering and irrigation, 30 acres	P-11512
17616	5/20/57	Thorkild and Helen P. Thomsen	--	Barton Creek	NE	SE	31	17N	17W	MD	0.45 cfs 13.6 af	Jan 1-Dec 31 Nov 1-May 1	Stockwatering and irrigation, 30 acres	P-11235
17680	6/28/57	Archie A. and Grace V. Gordon	--	Spring tributary to Barton Gulch	SW	SW	32	17N	17W	MD	6,400 gpd	May 1-Nov 1	Irrigation, 5 acres	L-6210
17708	7/9/57	Wayne D. and Helen E. Shoberg	--	Digger Creek	NE	SE	24	18N	18W	MD	10,000 gpd	Jan 1-Dec 31	Domestic and irrigation, 4.5 acres	P-11251
17861	10/24/57	Anchor Bay Corporation	--	Quin Loven Gulch	SE	NE	18	11N	15W	MD	0.1 cfs	Jan 1-Dec 31	Domestic	P-11227
18052	3/17/58	Oliver W. Winkler	11N/15W-11E1	Navarro River	SW	NW	11	11N	15W	MD	1.33 cfs	May 15-Oct 15	Irrigation, 104 acres	P-11746
18098	4/21/58	James N. Nash	--	Fish Rock Creek	SW	SE	7	11N	15W	MD	0.16 cfs	Jan 1-Dec 31	Domestic	P-11535
18129	5/9/58	Floyd L. and Eve M. Stretlow	--	Spring tributary to Russian Gulch	NE	NE	28	17N	17W	MD	11,500 gpd	Apr 1-Nov 1	Domestic and irrigation, 1 acre	L-6483
18314	9/11/58	U. S. Air Force Hamilton Air Force Base	--	Rolling Brook Creek	NE	SE	18	12N	15W	MD	0.13 cfs 1.5 af	Jan 1-Dec 31 Jan 1-Jul 31	Domestic Industrial	P-11772
18399	11/6/58	Clifton E. and Beulah C. Thorne	--	North Fork of Henry Gulch	NW	SE	12	11N	16W	MD	5,000 gpd	Jan 1-Dec 31	Domestic and industrial	P-11933
18694	5/7/59	U. S. Air Force Hamilton Air Force Base	--	Spring tributary to Garcia River	SW	SE	17	12N	15W	MD	0.04 cfs	May 1-Nov 1	Domestic	P-12087
18906	8/10/59	Thomas M. and Charlene J. Aumack	--	Stream tributary to Mitchell Creek	NW	SW	25	18N	18W	MD	0.077 cfs	Jan 1-Dec 31	Domestic and irrigation, 2.5 acres	P-12207
18907	8/10/59	Clear Water Ranch Childrens House, Inc.	--	Indian Creek	SW	NE	17	11N	14W	MD	0.075 cfs	Apr 1-Oct 1	Domestic and irrigation, 11 acres	P-12208
19141	12/21/59	Robert and Mildred Baldy	--	Stream tributary to Noyo River	NW	NW	17	18N	17W	MD	0.70 cfs	Apr 1-Oct 31	Irrigation, 50 acres	P-12393
19190	1/25/60	Harold Braytoo	--	Hare Creek	NW	NE	19	18N	17W	MD	0.03 cfs	June 1-Nov 30	Domestic and irrigation, 1.5 acres	P-12438
19294	3/8/60	Donald R. and Bessie M. Richardson	--	Stream tributary to South Fork Gualala River	NE	SW	25	10N	14W	MD	105 af	Oct 1-May 31	Recreational, fish culture and irrigation, 40 acres	P-12666
19570	7/22/60	Arthur F. and Jennie D. Jauch	--	Stream tributary to Navarro River	SE SE SE	NW NW NW	3 3 3	15N 15N 15N	17W 17W 17W	MD MD MD	0.15 cfs	Jan 1-Dec 31	Domestic. - recreational and irrigation, 10 acres	P-12788
19948	2/1/61	Alan C. and Dena Draper Taft	--	Reynolds Gulch Creek	NE	SE	17	16N	17W	MD	7,790 gpd	Jan 1-Dec 31	Domestic and irrigation, 2 acres	Pending
19949	2/3/61	Dean L. and Priscille Lee Miller	--	Creek tributary to Pacific Ocean	NW	NE	12	11N	16W	MD	600 gpd	Jan 1-Dec 31	Domestic	P-13346
20115	5/8/61	George Nobles and Marjorie Nobles Newhall		Anderson Creek and Soda Creek	NE	NW	12	13N	14W	MD	0.5 cfs	June 1-Dec 1	Irrigation, 45 acres	Pending
20120	5/10/61	Elk County Water District	15N/17W-35Q1 15N/17W-35Q2 15N/17W-35J1 15N/17W-35J2 15N/17W-35J3 15N/17W-36M1	Bones Gulch	SE	NE	35	15N	17W	MD	2 cfs	Jan 1-Dec 1	Municipal	P-13414
20242	6/1/61	Ethal M. Beckar	--	South Fork of Big River	SW	NE	19	16N	14W	MD	1,500 gpd	Mar 1-Nov 1	Domestic and irrigation, 1 acre	Pending
20567	1/22/62	R. W Adams	--	South Fork of Gualala River	NE	NW	10	8N	12W	MD	45 af	Oct 1-May 1	Recreational, fish culture and irrigation, 53 acres	Pending

* P - Permit number of approved application Pending - Application complete but not approved. L - License number of confirmed right.

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